A STUDY IN HOSPITAL EFFICIENCY

As Demonstrated by the Case Report of the First Five Years of a Private Hospital

BY

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THE FOREWORD OF THIS REPORT IS
THE LAST WORD OF THE LAST REPORT:

It is Idle to Consider the Standardization of Hospitals without considering the Standard of the Product of each Hospital, the part which the Professional Staff plays in raising the Standard of the Product, and the Compensation which the Hospital grants the Staff in return for their services.

This Hospital has for sale a Product of the Standard found on pages 12–63. It aims to be a Hundred Dollar Hospital with a Hundred Dollar Surgeon.

This Volume is Dedicated to

RICHARD C. CABOT

because I respect his motives, admire his courage and energy, but heartily disapprove of some of his opinions and methods, for he seems to want to reform the bottom of the profession, while I think the blame belongs at the top.

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PART I

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INTRODUCTION

The argument in our previous Reports has been somewhat as follows:

That the Trustees of our Charitable Hospitals do not consider it their duty to see that good results are obtained in the treatment of their patients. They see to it that their financial accounts are audited, but they take no inventory of the Product for which their money is expended. Since the Product is given away, they do not bother to standardize it and to see whether it is good enough to be sold.

It is against the individual interests of the medical and surgical staffs of hospitals to follow up, compare, analyze, and standardize all their results, because:

1. It is seldom that any single individual's results have been so strikingly better than those of his colleagues, that he would desire such comparison and analysis. Perhaps the results as a whole would not be good enough to impress the public very favorably.

2. An effort to thus analyze is difficult, time-consuming, and troublesome, and would lead, by pointing out lines for improvement, to much onerous committee work by members of the staff that would be still more time-consuming, difficult, and troublesome.

3. Neither Trustees of Hospitals nor the Public are as yet willing to pay for this kind of work.

Although the staff would admit that such follow-up and analysis was a good thing for all, yet each "practical" man (and the practical men always hold the power) would wait for somebody else to do the work.

The superintendent would lose his position, if he undertook to insist on "good results." It is already more than he can do to listen to the wails of "lack of economy," "lack of politeness," "lack of common sense" with which the trustees, staff, and patients deafen him.

Therefore, if the trustees, the staff, and the superintendent all avoid the analysis of results, *and it is only for the interest of the patients, the public, and medical science,—why bother about it?*

The truth is, the patients and the public do not yet understand the problem. They suppose that of course *somebody* is looking into this important matter. They do not realize that the responsibility is not fixed upon any person or department.

As for Medical Science's not caring,—this is the consequence of our medical schools' paying their teachers by giving them the opportunity to advertise. Our method of teaching medical science is as fraught with evil as if our Professors of Chemistry were permitted to organize a monopoly of the Trade in Chemicals, so as to illustrate to their students the "practice" of chemistry. As unpaid or partially paid medical teaching is the custom in most parts of the world, we have become used to it. If the professors advertised only the goods they actually could deliver, such a practice would be defensible; but it is a rare teacher who can avoid the assumption of knowledge which he does not possess, as this is the time-honored habit of our profession.

We have not offered this destructive criticism without a constructive remedy:

THE END RESULT SYSTEM

We have advocated a simple system of hospital organization first recommended by the Committee on Standardization of Hospitals of the Clinical Congress of Surgeons.

In brief, it is this:

That the Trustees of Hospitals should see to it that an effort is made to follow up each patient they treat, long enough to determine whether the treatment given has permanently relieved the condition or symptoms complained of.

That they should give the members of the Staff credit for taking the responsibility of successful treatment and promote them accordingly. Likewise they should see that all cases in which the treatment is found to have been unsuccessful or unsatisfactory are carefully analyzed, in order to fix the responsibility for failure on:

1. The physician or surgeon responsible for the treatment.
2. The organization carrying out the detail of the treatment.
3. The disease or condition of the patient.
4. The personal or social conditions preventing the coöperation of the patient.

This will give a definite basis on which to make effort at improvement.

Technically, to start this System in a hospital, it is necessary to introduce the use of an "End Result Card" which is kept for each patient, and on which is recorded in the briefest possible terms (see pages 72–73):

The symptoms or conditions for which he seeks relief.
The diagnosis of the pathologic conditions which the doctor who gives the treatment believes to be the cause of the symptoms, and on which he bases his treatment.
The general plan or important points of the treatment given.
The complications which followed before the patient left the hospital.
The diagnosis which proved correct or final at discharge.
The result each year afterward.

Obviously, the number of details given under these headings might be infinite in extent, but still no case is so complex, that it cannot be reduced to an abstract referring to a detailed record. To take two extremes:

A simple case of appendicitis may be abstracted thus:

Came for the relief of: acute abdominal pain for 24 hours.
Diagnosis on which treatment was based: acute appendicitis.
Important points of treatment: a gangrenous appendix removed and drainage established.
Complications: none.
Final diagnosis: acute appendicitis.
Result one year later: perfect.

whereas another complicated case might be:

Came for the relief of: many ill-defined symptoms.
Diagnosis on which treatment was based: consultants varied in opinions.
Treatment: expectant for 4 weeks, and then exploratory laparotomy which revealed no pathologic conditions.
Complications: phlebitis, cystitis.
Final diagnosis: undetermined except for phlebitis and cystitis.
Result a year later: condition the same as before treatment.

Certainly even a trustee could pass the first case as O. K., and satisfy himself that the whole organization of the hospital did not relieve the second.

Undoubtedly a layman could not enter authoritatively into the details of the reasons why, but he could insist that the End Result System should be used, that some one must see that it is used; and that an efficiency committee be appointed for that purpose.

At present, in most hospitals, no such investigation is made by any one. *There is no standard of good results to go by,* but we are setting standards in this Report. We believe they are as high as any. The questions which should interest you are: Are yours better or worse? Are you making any effort to find out?

In our Charitable Hospitals it is the Duty of no person or Department to ask these questions. It is a disagreeable Duty which neither the Staff nor the Board of Trustees nor the Superintendent has the strength to assume alone. An Efficiency Committee composed of

members of each of these departments should assume this burden. The coöperation of the Board of Trustees is necessary both to authorize the expense and to guarantee the standard of the work reported.

Even if a detailed report is not published, a typewritten review should be kept for the use of the Efficiency Committee.

When this step is taken by our Great Hospitals, True Clinical Science will begin.

(For the Benefit of Those Readers Who Have Not Seen the First Report, the Following Portion is Reprinted to Make the Ensuing Cases Intelligible)

The object of this study is to give a practical illustration of the theory of hospital organization based upon an End Result System. This system, with its simple details, is set forth in the Report of the Committee on Standardization of Hospitals presented before the Clinical Congress of Surgeons of North America, at its meeting November 10–15, 1913.[1] (See also page 71.)

We believe that all hospitals should have such reports, even, and perhaps especially, private hospitals. We believe that it is for the private hospitals to begin this publicity, as well as for the large, general institutions with national reputations. The reports of such large institutions would form minimum standards, and all private hospitals and small non-teaching hospitals should show much better results than the larger institutions.

We publish this study to show that it is possible for a private hospital to make such a report, and we believe that if a private hospital can thus expose its weaknesses, the public hospitals should certainly be able to do so.

In the following Report we have not in all cases attempted to follow the letter of the suggestions of the above mentioned Committee. If we had done so, we should probably have had no readers, because a mere set of abstracted case histories would have been too dull even for a statistician.

We want to have this report read—partly because we are as proud of the cases from a mere surgical point of view as we usually are of the cases reported in our papers on special subjects, and partly because we want to illustrate a definite method by which the organization of a Surgical Service of a Hospital can be based on the End Result System. We believe the same general method can be applied to other branches of clinical work besides surgery.

The Idea is so simple as to seem childlike, but we find it ignored in all *Charitable Hospitals,* and very largely in Private Hospitals.

It is simply to follow the natural series of questions which any one asks in an individual case:

What was the matter?

Did they find it out beforehand?

[1] *Surgery, Gynecology, and Obstetrics*, January, 1914.

Did the patient get entirely well?

If not—why not?

Was it the fault of the surgeon, the disease, or the patient?

What can we do to prevent similar failures in the future?

We believe that the general acceptance of a system of hospital organization based on the truthful record of the answers to these questions means the beginning of True Clinical Science.

The reader must not suppose that we recommend the publication of such criticisms as we have here inflicted on ourselves, or even recommend that the Chiefs of Surgical Services should be so merciless to their Juniors.

In this report we are proud to say that we have suppressed nothing, but have given even the smallest details of lack of success. We are not afraid to do this, because we believe we have obtained as good results in these cases as any surgeons could have. To the layman who chances to read this paper, the fates of these cases may seem far better or far worse than his vague imaginations of the results of surgery, but we believe that few surgeons would say that they are not excellent. Therefore, why should not the layman see them, if he cares to? Why should he not look farther and study the reports of the large hospitals for himself, to learn where such and such a branch of surgery is well done?

In making our marginal symbols, with their accompanying criticisms, we have been hypercritical—and in fact have had to be, to find sufficient illustrations to show the points we wish to make! The absence of post-operative complications has made it difficult to make one of our chief points clear—that reduction of the number of surgical complications, such as sepsis, phlebitis, cystitis, etc., is one of the easiest ways of economizing hospital funds. Every patient-day lost in a charitable hospital by these complications should be multiplied by the daily per capita expense, and an account kept of the same. This amount can be greatly reduced by efficient organization.

To effect improvement, the first step is to admit and record the lack of perfection. The next step is to analyze the causes of failure and to determine whether these causes are controllable. We can then rationally set about effecting improvement by enforcing the control of those causes which we admit are controllable, and by directing study to methods of controlling those causes over which we now admit we have but little power.

A hospital that has an End Result System, has an authoritative method of admitting and recording its failures in diagnosis and treatment.

The present paper deals with the analysis of the causes of failure and the determination of the degree within which we can control these causes. We believe that the most difficult step has been taken when the staff of a hospital once agrees to admit and record the lack

of perfection in the results of its treatment. Improvement is then sure to follow, for it often is the error of which we are ignorant that we persist in carrying with us.

To illustrate a practical method of making such an analysis, we have taken the Results of our own private hospital for the first two[1] years of its existence. These abstracts have been edited from the End Result Cards in the way recommended. In a few of the more interesting cases (Cases 24, 33, 42, 53, 55, 78, etc.) we have made quite a long abstract, partly to interest the reader and partly to show that many cases of great interest and importance would be conveniently placed at the disposal of science if such a system existed in the large hospitals. These unusual usual cases, if we may so call them, are now lost, because surgeons are too busy to write them up. The rare cases of primary cancer of the Fallopian tube (Case 42), and the enormous distention of the common duct (Case 33), are unique in our experience; but if we could skim through the abstracts of some of the large hospitals we could no doubt make collections of such cases large enough for comparative study. It is the usualness of things which we think are unusual which often keeps us blind to important facts before our noses.

The reader must suppose himself the Chief of a Surgical Service or a member of a Hospital Efficiency Committee. The End Result Cards of the week are before him. In a large hospital the Chief of each Service, at a certain hour, can have handed to him the End Result Cards of all of his cases which have been discharged during the previous week, and also all returns brought in during that week by the Follow-up System. A service of 60 beds can thus be easily reviewed in one hour a week. He must read them through and mark in the margin of those cases which lack perfection the symbols indicated below. He may O. K. where he sees no flaw, and he may also graciously star the cases which he considers creditable. A key to the writer's reasons for criticism will be found on pages 98–107.

To the thoughtful person it will be at once apparent that a Chief of Service who criticizes the results of his juniors or colleagues as exactingly as we have done here would soon lose the *esprit de corps* which is necessary in successful work. Successful leadership always requires tact, whether the driving is done by criticism of the failures or by praise of the successes. To enthusiasm nothing is so deadening as to be ignored. To most men it is enough to know that the work is observed and measured, and if found of value, will be appreciated.

If the Chief has the gift of leadership, he will praise here and condemn there, under any system of organization; but whatever the gifts of the Chief, there must be a difference in systems, and it is our belief that an organization based on the consideration of the actual Results accomplished must be better than one by which they are ignored.

[1] Now five years.

THE CASE REPORT FROM THE OPENING OF THE HOSPITAL IN AUGUST, 1911, TO AUGUST, 1916

Each patient has a permanent number—no matter how many times he reënters the hospital. Each number will be abstracted once and succeeding reports will simply give the number and the statement of the condition of the patient at that date. When the death of the patient has once been announced, the number will merely be omitted from future reports.

Thus far no case has been refused admission, because of the gravity of the condition or the critical character of the operation involved, although we by no means agree to take every case.

There are two important words to be used in a report of this kind.

None—referring to complications—means that there literally were no complications such as local or general sepsis, phlebitis, cystitis, pulmonary conditions, burns from hot-water bottles, sinuses, secondary abscesses, or any other complication resulting directly from the operation or following it from other causes.

Well—referring to a result—means well, except so far as inevitable consequences of the operation are concerned, such as normal scars in abdominal operations, the absence of the limb after amputation, or the anesthesia inevitable after removal of the Gasserian ganglion. It should be qualified by a detail if sinuses, herniæ, painful scars, or other troublesome post-operative complications have occurred.

In the report of a charitable hospital the duration of the patient's stay should also be recorded, because this item is important in the study of the efficiency of the institution. No patient's stay should be prolonged unnecessarily in such institutions, because each day lost means a fraction less relief given to some other patient.

ALL RESULTS OF SURGICAL TREATMENT WHICH LACK PERFECTION MAY BE EXPLAINED BY ONE OR MORE OF THE FOLLOWING CAUSES

Errors due to lack of technical knowledge or skill	E-s
Errors due to lack of surgical judgment	E-j
Errors due to lack of care or equipment	E-c
Errors due to lack of diagnostic skill	E-d
These are partially controllable by organization.	
The patient's unconquerable disease	P-d
The patient's refusal of treatment	P-r
These are partially controllable by public education.	
The calamities of surgery or those accidents and complications over which we have no known control	C
These should be acknowledged to ourselves and to the public, and study directed to their prevention.	

In order to give readers who have not seen the two previous Reports the opportunity to try out the use of the Index Chart and to otherwise make the text more intelligible, I here repeat abstracts of those Reports. If a large hospital followed this system, it would, of course, only print the abstracts of cases which had entered since the last report, and only the late notes of all cases previously abstracted. There are minor errors in the earlier reports, but it has seemed best to ignore them, as they are unimportant.

The only authority I can give for the truthfulness of these reports is my own word. They, therefore, cannot carry the weight that they would if the Trustees of an Endowed Hospital had had them audited, as they do the financial accounts. The pity of it is that such trustees do not feel it their duty to thus O. K. the work of their staffs. They content themselves with hiding behind their reputations, and rely on what the staff is said to be able to do, not what it actually does do, to the patients.

I claim that though the only authority I have for the accuracy of these reports is my own word, the publicity discourages deception on my part. And I claim that the reverse is true in the case of the Endowed Hospitals—the privacy maintained as to their results encourages deception.

The practice of medicine and surgery will always be to a certain extent experimental. Every operation done, in any public or private hospital, is an experiment. I do not claim that such experiments are wrong, but that privacy in regard to them is wrong. The public is entitled to know the results of the experiments it must endure. Both the successful and unsuccessful experiments and experimenters should be advertised (made public). If charitable hospitals are to continue to pay their staffs only by the opportunity to acquire reputation, let us make sure that the reputation is earned. Let the hospital do the advertising of good and bad alike, and the Public will respond. If necessary, the hospital itself can pay for the professional care and study of cases whose cure or relief is so doubtful that the "practical" men see no credit or profit in attending them.

Case 1. Admitted Aug. 25, 1911. Male—35. Recurrent attacks of painful indigestion. Pre-operative diagnosis—duodenal ulcer. Consultant—Dr.
E-d H. F. Hewes. Op. (E. A. C.)—Abdominal exploration. No ulcer found. Appendectomy. Appendix not abnormal. Complications—None.
Result: Oct. 26, 1914—Well. Scar solid. No pain like that previous to operation, but in Jan., 1914, an attack of indigestion soon relieved by lavage.

2. Aug. 28, 1911. Female—18. Inability to breathe through nose. Con't
E-s —Dr. D. Crosby Greene. Op. (D. C. G.)—Submucous excision of septum. Comp.—None. July 20, 1915—Better, but still annoyed by scabs on septum.
Result: Aug. 3, 1916—Condition same.

3. Aug. 28, 1911. Male—8. Enlarged tonsils and adenoids. Mouth
O K breather. Con't—Dr. D. Crosby Greene. Op. (D. C. G.)—Tonsillectomy and removal of adenoids. Comp.—None.
Result: Aug. 3, 1916—Sister reports, "Well."

4. Sept. 4, 1911. S. female—41. Double chronic mastitis. Con't—Dr. R. B. Greenough. Op. (E. A. C.)—Amputation of both breasts. Comp. —None. Aug. 11, 1915—Has since been operated on by another surgeon for fibroids of uterus. Scars normal. O K
Result: Sept. 12, 1916—Well, except that every 28 days she has a pain in scar of left breast which resembles pain she had before operation.

5. Sept. 5, 1911. Male—46. Constipation and pain due to fissure of the anus. Op. (E. A. C.)—Stretching of sphincter. Comp.—None. O K
Result: July 15, 1916—Well.

6. Sept. 5, 1911. Male—31. Balanitis. Op. (E. A. C.)—Circumcision. Comp.—None. O K
Result: July 17, 1915—Still slight eczema on glans. Aug. 7, 1916—Letter—Condition same.

7. Sept. 5, 1911. Female—34. Hernia in appendectomy scar from previous op. by E. A. C. for acute appendicitis. Recurrent attacks of vomiting and indigestion. Op. (E. A. C.)—Radical cure of hernia. Comp.— None. Dec. 6, 1911, re-entry—Fissure in anus. Op. (E. A. C.)— Stretching sphincter. Dec. 27, 1911, re-entry—for rest and further study. E-j
Result: Aug., 1913—General condition much improved. Scar solid. Still has distressing attacks of vomiting and indigestion, for which exploratory operation has been advised but not urged. Aug. 12, 1915—Brother reports "about the same." Aug. 4, 1916—Physician reports, "She is better, but still has some nausea, and is more or less nervous." P-r

8. Sept. 14, 1911. Male—49. Renal colic and hematuria. Con'ts—Dr. A. L. Chute and Dr. F. B. Harrington. Op.—Cystoscopy and ureteral catheterization by Dr. Chute. Old blood withdrawn from renal pelvis. E-d
Symptoms immediately improved and disappeared entirely in a few P-d
days. Explor. op. on the kidney was advised but refused.
Result: Died in May, 1913. Autopsy—Banti's disease and chronic nephritis.

9. Sept. 1, 1911. Male—12. Fracture of both bones of forearm. Op. (E. A. C.)—Reduction of fragments. Comp.—None. O K
Result: Perfect. (Exam. Aug., 1912.) July 25, 1915—Well.

10. Dec. 5, 1911. Male—84. Hemorrhage from a gangrenous melanotic sarcoma of the left cheek. Op. (E. A. C.)—Cocaine. Removal of sarcoma and skin plastic to cover defect. Comp.—None. P-d
Result: Died of recurrence on Mar. 7, 1912.

11. Dec. 12, 1911. Male—18. Acute hematogenous infection of kidney simulating appendicitis. Operation not advised. Con't—Dr. Farrar Cobb. No op. O K
Result: July 19, 1915—Well. July 28, 1916—Letter—Well.

12. Jan. 4, 1912. Case of apoplexy admitted as an emergency under the charge of her private physician. P-d
Result: Death on second day.

13. Jan. 17, 1912. Female—43. Persistent vomiting; abdominal pain; painful hemorrhoids, backache, etc. Op. (E. A. C.)—Removal of adherent obliterated appendix; ventral fixation; clamp and cautery for hemorrhoids; dilatation of sphincter ani. Later dilatation of œsophagus O K
by Drs. Robinson and Mosher. Comp.—None.
Result: Sept. 8, 1916—Exam.—Well, only twinges of the spasm. Scar solid.

14. Jan. 21, 1912. Female—11. Recurrent mild attacks of right-sided abdom. pain. Pre-op. diag.—Chr. appendicitis. Op. (E. A. C.)—Removal of a strictured appendix. Comp.—None. O K
Result: Sept. 3, 1915—Physician reports, "Well."

O K

15. Jan. 27, 1912. Male—16. Large splinter in sole of foot for three weeks. Op. (E. A. C.)—Removal of splinter. Cocaine. Comp.—None. *Result:* July 29, 1915—Well.

O K

16. Feb. 8, 1912. Female—26. Necrotic tuberculous gland of neck; recurrent. Op. (E. A. C.)—Thorough curettage.
Result: June, 1913—Well. One small palpable gland. In autumn of 1914 was well. May 24, 1916—Re-entry. Annoying pain in right iliac region for several months. Pre-op. diag.—Chronic appendicitis. Op. (E. A. C. and A. R. B.) Local anæsthesia. A thickened appendix with concretions and stricture at the base, removed. Comp.—None. July 30, 1916—Letter—Well. Jan. 4, 1917—Re-entry. Excision of painful wart on sole of foot. Otherwise well.

E-j

17. Feb. 10, 1912. Female—39. Hemorrhoids. Op. (E. A. C.)—Clamp and cautery. Comp.—None.
Result: Sept. 8, 1913—Well, except for annoyance from skin tabs which were not removed.

E-d

E-c

18. Feb. 11, 1912. Female—38. Intermittent right-sided abdominal pain and one attack of jaundice. Pre-op. diag.—Gallstones. Op. (E. A. C.) —No gallstones. Appendix removed; not abnormal. Comp.—Mild sepsis in abdom. fat, not delaying conval. S. albus. Attack malaria in second week. Parasite demonstrated by Dr. G. C. Shattuck.
Result: July 24, 1916—Well. Scar O. K. Minor complaints.

O K

19. Feb. 12, 1912. Female—49. Abdom. pain and fibroid tumors of uterus. Op. (E. A. C.)—Hysterectomy and appendectomy. Ap. strictured and adherent. Comp.—None.
Result: Aug. 5, 1916—Letter—Well.

O K

20. Feb. 13, 1912. Neurasthenic female—44. Persistent vomiting, abdom. pain and low urinary output. Great improvement under proper feeding and care for three weeks.
Result: July 26, 1915—Better, "but still has trouble and constipation."

O K

21. Feb. 15, 1912. Male—59. Recurrent attacks of painful indigestion of many years' standing. Recent profuse hematemesis. Pre-op. diag.—Duodenal ulcer. Op. (E. A. C.)—Post. gast. ent. and infolding ulcer. Comp.—None.
Result: Aug. 4, 1915—Well. Aug. 5, 1916—Letter—Well. Jan. 26, 1917 —Well until within a few months, when hyperacidity symptoms returned. Vacation advised.

O K

22. Feb. 15, 1912. Male. Emergency case of severe epistaxis under charge of another physician.
Result: July 16, 1915—Well.

O K

23. Feb. 24, 1912. Male—59. Comminuted fracture and external displacement of head of humerus. Removed to Corey Hill Hospital. Op. (E. A. C.)—Excision of head of humerus by "sabre cut" incision. Comp.—None.
Result: Aug., 1913—Excellent. Can play a good game of golf. Aug. 23, 1916—"Golf handicap 17." Useful but by no means perfect shoulder. Most of the motion is accomplished with the scapula on the chest wall. Somewhat awkward in many motions, but on the whole satisfactory.

24. Mar. 5, 1912. Male—59. Crippled with infectious arthritis of many joints and suffering from pronounced digestive disturbances of many years' standing; also profuse purulent chronic bronchitis. Referred by Dr. C. F. Painter, to whom he had applied for relief from his arthritis. The patient was kept two weeks before operating in hope of improving his general condition, which was wretched. Con't—Dr. R. H. Fitz. Pre-op. diag.—Gallstones. Op. (E. A. C.)—Multiple adhesions. Con-

tracted gall bladder containing a large stone and connected by tortuous suppurating sinus with duodenum. Cholecystectomy and drainage of sinus. Comp.—Pneumonia and leakage of duodenal contents and finally peritonitis.
Result: Lived 13 days. This was a case of diffuse chronic pneumococcus infection before operation, for pneumococcus-like organisms were obtained from the sputum and from the stomach washings. The latter came from the stomach tube in the form of false membranes resembling rose leaves in consistency and color. Under the microscope these proved to be almost pure masses of pneumococci. At autopsy pure cultures were also obtained from peritoneal cavity and from joints. The lungs showed multiple chronic bronchiectases and small areas of pneumonic consolidation. This case also illustrates the point which has been brought out by E. A. C., that the reason that Courvoisier's law holds true is that contracted gall bladders in the presence of common duct stone probably always have intestinal fistulæ at some time. Hence one never finds a contracted gall bladder that is not adherent to the intestine. P-d E-j

25. Mar. 7, 1912. Female. Under the care of Dr. W. P. Graves. Severe metrorrhagia. Op. (W. P. G.)—Abdom. hysterectomy for uterine insufficiency. Comp.—None. O K
Result: Aug., 1913—No report.

26. Mar. 8, 1912. Female. Under the care of Dr. W. P. Graves. Op.—Plastics on cervix and perineum; ventral fixation; appendectomy. Comp.—None. O K
Result: Sept. 27, 1915—Dr. G. reports O. K.

27. Mar. 10, 1912. Male—17. Carbuncle of the upper lip. No op. Recovery. O K
Result: Aug. 13, 1915—Well. No scar.

28. Mar. 13, 1912. Female—32. Chronic mastitis and mastodynia. Both nipples had previously been removed by another surgeon. Op. (E. A. C.)—Removal of both breasts. Comp.—None.
Result: Sept., 1913—Great relief from the above op. Now has distressing abdom. symptoms. July 19, 1915—Satisfactory result, but patient has since had an abdominal operation by another surgeon. July 27, 1916—Physician reports, "Much better this past year." O K

29. Mar. 28, 1912. Female. Under the care of Dr. W. P. Graves. Backache, fatigue and pelvic lacerations. Procidentia. Op. (W. P. G.)—Myomectomy and ventral fixation. Plastic on cervix and ant. and post. colporrhaphy. Comp.—Secondary hemorrhage from cervix of no practical importance.
Result: Nov. 14, 1913—Well (physician).

30. Mar. 29, 1912. Female—16. Separation of right sacro-iliac synchondrosis from an automobile accident. Rest in bed for three weeks.
Result: Sept. 9, 1915—Well, except for chronic tonsillitis and chronic organic heart disease, which were present at time of accident. Aug. 21, 1916—Same. O K

31. Apr. 2, 1912. Male—45. Acute biliary colic and chronic indigestion. Pre-op. diag.—Gallstones. Op. (E. A. C.)—Cholecystostomy and removal of stones. Comp.—None.
Result: Aug. 21, 1913—Well. Slight digestive symptoms. Aug. 19, 1915—Since last report digestive symptoms became worse and op. was again advised. This was done by another surgeon, who writes that the gall bladder was removed and the common duct drained. After this was healed, a hernia in an appendectomy scar was repaired. Later the patient had attacks of abdominal pain with slight jaundice, and in one E-s

attack passed a small gallstone. Better since. Aug. 1, 1916—Looks well, but still has numerous minor complaints. Scars normal. Still particular about diet. Has had no attacks of biliary colic. Has acid indigestion and severe headaches.

32. Apr. 7, 1912. Female—40. Intermittent hydro-nephrosis. Palpable tumor in left flank size child's head. Op. (E. A. C.)—Kinking of ureter found to be due to aberrant vein to lower pole of kidney. Kinking prevented by suturing vein to pelvis of kidney. The vein was too large to be safely divided. Comp.—None.
O K
Result: July, 1913—Well. Kidney palpable. July 29, 1916—Letter—Well.

33. Apr. 8, 1912. Female—29. Deep obstructive jaundice and a tumor in epigastrium. Pre-op. diag.—Empyema of gall bladder. Op. (E. A. C.)—The tumor proved to be an enormously distended common duct. 28 ounces of bile were aspirated and several ounces of bile later sponged out. The duct also contained about 2 ounces of muddy material and one very small facetted gallstone. The dilatation extended into the hepatic ducts, but the cystic duct and gall bladder were of normal size and contained normal bile. Much bleeding at the operation; oozing continued from the wound until the 13th day, when after consultation with Dr. M. H. Richardson and Dr. R. H. Fitz transfusion was done by Dr. Beth Vincent. Bleeding at once ceased and the patient made a good recovery, leaving the hospital on the 54th day with a small biliary sinus. On Aug. 8, 1912, a choledocho-duodenostomy was performed by Dr. Hugh Williams and Dr. E. A. Codman at the Massachusetts General Hospital. Six days after this op. typical cholemic bleeding again occurred to some extent, but was controlled by local packing and by injection of rabbit serum, 15 c.c., on the 14th day. No other comp.
E-j
Result: Dec. 9, 1913—Well, but has had several attacks of mild jaundice with slight pain. Feb., 1914—Well. Aug. 1, 1916—Brother reports, "Fairly well." Occasional pain in region of scar.

34. Apr. 10, 1912. Male—44. Inflamed perineal sinus exactly resembling a pilonidal sinus, but extending anteriorly from the rectum. Op. (E. A. C.)—Cocaine. Opening and packing sinus. Comp.—None.
O K
Result: Aug. 10, 1916—Exam.—Well. No scar of sinus.

35. Apr. 16, 1912. Female—37. Vague abdom. discomfort, constipation and inertia. For diagnosis and X-ray. Explor. op. was advised but not urged, under the diagnosis of ptosis and retroversion. Op. refused.
P-r
Result: Sept. 4, 1913—No improvement. July, 1915—Phys. reports, "Patient has since had an abdominal operation by another surgeon."
E-d
July 28, 1916—Writes that the operation she had after leaving this hospital surely has been beneficial.

36. Apr. 20, 1912. Male—40. Vague abdom. discomfort. For diag. and X-rays. Palpable tumors, evidently tuberculous mesenteric glands were found. Severe degree of ptosis. The patient, on hearing that the chance of any relief from operation was small, did not wish to be operated upon.
E-j
Result: Aug., 1913—No improvement. Sept. 19, 1913—Decided to take any risk. Op. (E. A. C. and G. W. M.) at Copp Hospital, Cambridge.
P-d
Removal of four broken-down tuberculous glands of mesentery near ligament of Treitz. Removal of a greatly dilated prolapsed cecum with ascending colon and a small portion of ileum and a stenosed appendix.
C
Acute dilatation of stomach on 3d day, relieved by repeated lavage.
Result: Recovered from the operation, but died on Oct. 16 of pneumonia of six days' duration.

37. Apr. 22, 1912. Male—21. Right inguinal hernia. Op. (E. A. C.)—Ferguson method. Comp.—None.
O K
Result: In 1916, friend reported, "Well."

38. May 6, 1912. Female—51. Cancer of right breast. Op. (E. A. C.)—Amputation and dissection of axilla. Axillary glands involved. Comp.—None. P-d
Result: Dec. 1, 1913—No sign of recurrence. Pain in arm. Died in summer of 1914. Recurrence in spine?

39. June 3, 1912. Female—67. Details the same as case 38. Comp.—Slight necrosis edges of skin flaps. E-s
Result: Died in July, 1913, of spinal metastasis. P-d

40. June 2, 1912. Male—19. Septic olecranon bursitis. Op. (E. A. C.)—Incision and packing of bursa. Comp.—None. O K
Result: No report.

41. June 5, 1912. Female—78. Epithelioma of eyelid. Op. (G. W. M.)—Removal of growth. Comp.—None. O K
Result: Unknown.

42. June 8, 1912. Female—54. Recently recovered from a subacute attack of appendicitis. During this attack she had been seen in consultation by E. A. C. and conservative treatment advised, because her symptoms suggested that some other serious abdominal condition also existed—probably gallstones. As a difficult operation was to be avoided if possible in a private house, it was felt wiser to wait until the patient could come to Boston. Op. (E. A. C.)—The gall bladder was normal; the appendix (still subacutely inflamed) was removed. There were a few small uterine fibroids which were not removed. The left tube was the size of a banana and was closed at the fimbriated end, and presented the appearance of a chronic hydrops. It was removed entire and after removal showed on section a remarkable pedunculated cystic papillomatous tumor. The specimen was examined by Dr. W. F. Whitney and was pronounced a unique case of carcinoma of the Fallopian tube. It P-d
is preserved in the Warren Museum of the Harvard Medical School. From the specimen alone one would say that the possibility of recurrence was infinitesimal, so much healthy proximal tissue was removed with it; and yet the sequel showed a rapid recurrence, for 6 months later a second operation was done by E. A. C. at the patient's home and a diffuse carcinomatosis of the peritoneum found. The omentum was studded with the same minute beautiful yellow green and orange cysts which characterized the original tumor.
Result: The patient has since been treated by her physician under the direction of Dr. R. B. Greenough and Dr. E. H. Risley with cancer serum. Sept. 23, 1913—Is still living, but rapidly failing. Nov. 29, 1913—Apparent improvement. Able to be up (physician). Died Jan. 6, 1914. Autopsy—Diffuse carcinomatosis.

43. June 8, 1912. Emergency case of hemiplegia under the charge of another physician. P-d
Result: Death on 16th day.

44. June 9, 1912. Male—38. Perineal urethral abscess. Op. (G. W. M.)—Incision and drainage. Dilatation of stricture. O K
Result: Aug. 8, 1916—Dr. M. reports, "Perfectly well May, 1916."

45. June 10, 1912. Female—54. Bad organic heart lesion. Sought relief from recurrent right-sided abdominal pain and digestive disturbances. X-ray examination unexpectedly showed a large stone in the right kidney. The combined urine was normal. Ureteral catheterization showed that both kidneys secreted normal urine. The pheno-sulph. test E-j
appearing in 7½ minutes and showing 7% on right and 23% on left. C
Op. (E. A. C.)—Knowing that the left kidney was sound and believing as I do that one sound kidney is better than one sound one and one bad one, and that kidneys long blocked by stone seldom return to normal

showed besides the large stone several small ones, one of which was so buried in the kidney substance that it would not have been reached by pyelotomy. The patient made a good operative recovery. The wound was soundly healed and she was beginning to sit up, when on the 19th day she suddenly died. No autopsy was obtained, so it is uncertain whether death was due to the heart lesion or to pulmonary embolism from the renal vein, probably the latter.

46. June 13, 1912. Female—59. Purulent discharge from the right nipple and chronic mastitis. Op. (E. A. C.)—Excision of right breast and removal of an epithelioma of the nose (incidentally discovered). Comp. —None.
O K
Result: Aug. 25, 1913—Well. Aug. 21, 1916—Exam.—Scars O. K. General health good.

47. June 18, 1912. Female—22. Dysmenorrhœa. Op. (E. A. C.)—Dilatation of cervix. Comp.—None.
P-d
Result: July 25, 1915—Great improvement. (Letter.) July 27, 1916—Mother writes that she is better, but still has menstrual pain at times.

48. July 1, 1912. Male—6. Constipation. Congenital dilatation of the sigmoid. Radioscopic examination and observation. Op. not advised.
O K
Result: Aug., 1913—Somewhat improved by conservative treatment.

49. July 5, 1912. Female—29. Marked neurasthenia and subsiding acute appendicitis. Op. (E. A. C.)—Appendectomy. Ap. subacutely inflamed. Comp.—None.
O K
Result: Sept. 20, 1913—Greatly improved but still has vague abdominal symptoms. Aug. 10, 1916—Physician writes, "She says she is feeling better than she has for years."

50. July 6, 1912. Male—35. Typical symptoms of acute appendicitis of 12 hours' duration. Op. (E. A. C.)—Gangrenous appendicitis. Appendectomy and drainage. Comp.—None.
E-s
Result: Oct., 1913—Well, except for small hernia in scar. July 19, 1915—Well. Hernia not examined. Aug. 18, 1916—Telephone—"No further symptoms."

51. July 8, 1912. Female—42. Tumor of breast. Pre-op. diag. in favor of fibroma. Op. (Dr. C. C. Simmons present in consultation) (E. A. C.)—After exploration with cocaine, amputation of breast and dissection of axilla under ether, one axillary gland involved. Path. report—Cancer.
Result: Nov., 1913—Well (exam.). A small cyst in other breast. Feb.,
E-d 1914—Cyst has entirely disappeared. Well. July 16, 1915—Under treatment for fracture of olecranon. Aug. 5, 1916—Exam.—Well. Union of olecranon excellent, but lacks about 45° of flexion. Weight normal. No recurrence.

52. Aug. 3, 1912. Female. Lipoma of forearm. Op. (E. A. C.)—Excision.
O K Comp.—None.
Result: No report.

53. Aug. 12, 1912. Female—37. Cauliflower cancer at umbilicus size of fist, infiltrating the adjacent muscles and having a fecal fistula in its center. Pelvic induration. Patient bedridden. Operation at first refused by E. A. C. on the ground of inoperability. As the patient and
P-d her husband begged that some attempt be made, even at great risk, a consultation was held with Drs. C. A. Porter, D. F. Jones and H. Cabot. Dr. Cabot had some years previously successfully removed a tuberculous stricture from the patient's rectum. It was decided to attempt operation and Dr. Porter consented to do it. Op. (C. A. P. and E. A. C.)—The growth with an oval area containing about one-half the abdominal wall with most of the transverse colon and omentum were removed

en masse; end to end anastomosis of colon. When this had been completed another annular carcinoma of the sigmoid was found buried in pelvic adhesions. This was obviously causing obstruction and yet could not be removed; a lateral anastomosis was done which successfully short-circuited it. At this time her condition, though one of shock, seemed viable if the abdominal wall could be closed. This seemed impossible, for the edges would not meet by several inches even under tension. Dr. Porter resorted to an expedient which he has before used but never published. With a few sweeps of his hand he mobilized the whole peritoneum back to the psoas muscle on each side. The intestines were easily sewed up in this free membrane as in a bag. Over this the fascia and skin were pulled as far as possible, but could by no means be brought together, and gauze was packed down to the peritoneal bag. The patient recovered in spite of leakage from the colon anastomosis and a troublesome fecal fistula. (I have no hesitation in saying that this was the most remarkable abdominal operation I have ever seen which resulted successfully; nor have I ever seen such courage as this patient exhibited both before and after her operation.)
Result: Sept. 1, 1913—Her husband (a doctor) writes that in spite of a troublesome sinus she is up and about every day and that there is no sign of return of the growth. Died in Nov., 1913.

54. Aug. 19, 1912. Female. Fracture of clavicle.
Result: Aug., 1913—Well, but has considerable bony callus. **P-d**

55. Aug. 23, 1912. Female—79. Extensive carcinoma of thyroid. Con't —Dr. C. A. Porter. Op. (C. A. P. and E. A. C.)—Radical dissection. The growth had penetrated the capsule and invaded the carotid sheath. All visible malignant tissue was removed. Comp.—None.
Result: The patient left the hospital with the wound healed on the 15th day. Recurrence was evident within a week and at once became fulminating. Death occurred within a month, at which time the recurrent growth was twice the size as at the time of operation. **P-d**

56. Sept. 1, 1912. Female—36. Had suffered from abdominal pain suggestive of duodenal ulcer and had previously had an unsuccessful appendectomy (?) by another surgeon. Pre-op. diag.—Peripyloric adhesions. Op. (E. A. C.)—Multiple adhesions separated and raw surfaces covered by peritoneal plastic. Comp.—None. **O K**
Result: Aug. 2, 1916—Letter—Well.

57. Sept. 7, 1912. Male—45. "Neuritis" and subacromial bursitis. Op. (E. A. C.)—Excision of a portion of bursa. Comp.—Protracted convalescence with much pain.
Result: Aug., 1913—Well, except for occasional twinges in shoulder. Sept. 8, 1915—Well. July 28, 1916—Letter—No inconvenience since last report. Patient states that shoulder has never regained its normal size in spite of exercise. **E-j**

58. Sept. 13, 1912. Very stout male—54. Right inguinal hernia. Op. (E. A. C. Spinal anæsthesia by Dr. Freeman Allen)—Radical cure (Bassini). Comp.—None. **O K**
Result: Aug. 28, 1913—Well. Aug. 18, 1915—Well, except for same chr. cough. July 27, 1916—Letter—Well.

59. Sept. 18, 1912. Female—58. Constipation, weakness, vague stomach symptoms, and a very tight sphincter ani. Op. (E. A. C.)—Proctoscopy and stretching sphincter. Comp.—None. **O K**
Result: Aug. 18, 1913—Much relieved. No constipation. Slight hyperacidity. Aug. 21, 1916—Exam.—Much improved, but still under treatment by physician for acid indigestion. No constipation.

O K 60. Sept. 19, 1912. Female. Deformed and painful great toe nail, previously unsuccessfully operated on by another surgeon. Op. (E. A. C.) —Removal of nail and excision of matrix. Comp.—None.
Result: Nov. 1, 1913—Well. April 18, 1916—No further trouble. Scar rough and horny.

P-d 61. Oct. 11, 1912. Female—9. Under the care of Dr. Harvey Cushing. Acute internal hydrocephalus, complicating an interpeduncular (hypophysial) tumor. Op. (H. C.)—Callosal puncture and ventricular drainage. Relief of pressure symptoms. Comp.—None.
Result: Aug., 1913—Condition unchanged. Dec., 1913—Has since been operated on by Dr. Cushing at the Brigham Hospital. June, 1915—"Her father states that her condition is about as a year ago." Brigham Hospital, No. 278 and No. 1217. July 31, 1916—Dr. C. reports, "Condition unchanged."

O K 62. Oct. 11, 1912. See note on case 125.
Result: July 31, 1916—Dr. B. reports, "Well."

O K 63. Oct. 17, 1912. Female—64. Under the care of Dr. Harvey Cushing. Major trigeminal neuralgia. Op. (H. C.) Oct. 19, 1912—Sensory root avulsion. Comp.—None.
Result: July 31, 1916—Dr. C. reports, "Well."

O K 64. Male—35. Right-sided abdominal pain. Pre-op. diag.—Appendicitis. Op. (G. W. M.)—Appendectomy for subacute appendix. Comp.—None.
Result: Aug. 13, 1913—Well. Gained 30 pounds. Dr. M. reports, "Perfectly well June, 1916."

P-d 65. Oct. 19, 1912. Male—52. Under the care of Dr. Harvey Cushing. Pituitary struma with hypopituitarism and blindness. Op. (H. C.) Oct. 21, 1912—Transphenoidal sellar decompression with partial removal of struma. Comp.—None.
Result: July 31, 1916—Dr. C. reports, "Condition unchanged."

P-d 66. Oct. 22, 1912. Male—20. Epilepsy. Old gunshot wound of head which had caused depressed fracture of skull. Con't—Dr. Harvey Cushing. Op. not advised.
Result: Aug., 1913—Improved under bromides.

O K 67. Oct. 22, 1912. Male—68. Under the care of Dr. Harvey Cushing. Major trigeminal neuralgia. Op. (H. C.)—Sensory root avulsion. Comp.—None.
Result: July 31, 1916—Dr. C. reports, "Well."

P-d 68. Oct. 23, 1912. Male—43. Pain, constipation and palpable rectal tumor. Pre-op. diag.—Cancer of rectum. Con't—Dr. D. F. Jones. Op. (E. A. C.)—Exploration showed a high cancer of rectum with adhesion to bladder, and multiple metastases scattered over pelvic peritoneum. The splenic flexure was sutured to abdominal wall in such a manner as to make cocaine enterostomy easy later. Comp.—None.
Result: The patient returned to his work, but the enterostomy was necessitated several months later and since then two secondary operations have been done; but in Nov., 1913, the patient was rapidly failing. Died in Dec., 1913.

O K 69. Oct. 28, 1912. Male—54. Under the care of Dr. Harvey Cushing. Major trigeminal neuralgia. Op. (H. C.)—Sensory root avulsion. Comp.—None.
Result: Mar. 16, 1916—Dr. C. reports, "Well."

O K 70. Nov. 1, 1912. Male—5½. Under the care of Dr. Harvey Cushing. Cerebral birth palsy. No op.
Result: No report.

71. Nov. 1, 1912. Male—64. Under the care of Dr. Harvey Cushing. Major trigeminal neuralgia. Op. (H. C.)—Sensory root avulsion. Comp.—None. O K
Result: July 31, 1916—Dr. C. reports, "Well."

72. Nov. 6, 1912. Male. Right inguinal hernia. Op. (E. A. C. and G. W. M.)—Ferguson method. Comp.—None. O K
Result: Aug., 1913—Well (physician). Nov. 4, 1916—Friend reports him "Well."

73. Dec. 4, 1912. Female. Turkey bone impacted in œsophagus. Bone pushed into stomach by bougie. Comp.—None. O K
Result: Sept., 1913—No further trouble from this cause.

74. Dec. 4, 1912. Female—30. For many years had suffered from constipation, lassitude, toxic headaches, undue fatigue, dysmenorrhœa, abdominal discomfort and soreness. The appendix had been removed a year previously by E. A. C. Pre-op. diag.—Intestinal stasis. Operation was undertaken with the intention of doing iliosigmoidostomy. Op. (E. A. C.)—Double hydrosalpinx with enormous flaccid dilatation of both tubes was found. Double salpingectomy and peritoneal plastic. E-s
Comp.—Slight serous discharge from wound causing no delay in convalescence. P-d
Result: Aug. 24, 1913—Greatly improved, but still has toxic headaches. Jan., 1914—Well, except slight headaches. July 18, 1915—"I am enjoying better health than ever before. Once in a while sick times with my stomach." Aug. 9, 1916—Letter—Not as well as last year. Abdominal soreness, but no pain. Other minor symptoms.

75. Dec. 5, 1912. Male. Injury to elbow. X-ray. No fracture. Prompt recovery. No report. O K

76. Dec. 7, 1912. Male—43. Symptoms of duodenal ulcer for many years. Persistent vomiting, loss of compensation in muscular power of stomach, arterio-sclerosis, marked albuminuria. Bld. pressure 240. This patient was kept under lavage for 9 days to restore the compensation of the stomach. The operation was then done without post-operative pain or shock under the principles of anoci-association. Op. (E. A. C.)—Moynihan operation of gastro-enterostomy and infolding of duodenal ulcer. P-d
Comp.—None.
Result: The patient had no return of stomach symptoms during his life. He returned to hard work as a lawyer and seemed in better health than for years until May, when he was taken with acute cardio-renal symptoms and died on May 14, 1913.

77. Dec. 9, 1912. Female—59. Recent attacks of gallstone colic. Op. (E. A. C.)—Cholecystostomy for cholelithiasis. Ap. adherent. Appendectomy. Comp.—None.
Result: Sept., 1913—Well. July 17, 1915—Well. Not exam. Aug. 1, 1916—Letter—"During the last year or so I have had several attacks of pain exactly like the old ones and typical of gallstones, but not quite so severe, though on one occasion I packed a suit case, expecting to sojourn with you again." E-j
(P.S. After completion of analysis.)
April 17, 1917. Re-entry for persistent biliary colic recurring at short intervals. General malaise. Op. (E. A. C. and G. F. L., Jr.)—Extensive adhesions found in whole right upper quadrant. A small gall bladder contracted on a single gallstone was removed with great difficulty. (The five gallstones removed at the previous operation had been black and friable, but this one was lemon-yellow, hard and crystalline. The mucosa was studded with crystalline deposits and had the "strawberry" appearance.) The dissection was extremely difficult on account E-s

of the old adhesions, fat, and high position of the gall bladder. The common duct was very small and thin-walled, so that I felt sure it contained no stones. The gall bladder was freed and the cystic duct tied off. At this point there was a sharp hemorrhage from the cystic artery, which was soon checked with a clamp, and a tie placed. The tie on the cystic duct was left long, as is my custom in cholecystectomy, so that, should a stone in the common duct be overlooked and jaundice develop, the tie could be pulled off. The wound was closed with cigarette drains.

Following the operation there seemed to be an undue amount of post-operative pain. On the second day slight jaundice began to develop, but at the same time a profuse discharge of bile came through the wound and the intense pain abated somewhat. On the third and fourth days the jaundice deepened, and yet the bile drained even more profusely. On the fourth day the temperature and respiration rose, and signs of consolidation in the right base appeared soon after. The tie was pulled off the cystic duct under the supposition that the jaundice might be due to a stone in the common duct which had escaped our notice. The biliary drainage through the wound I supposed due to the oozing of the raw surface of the liver in which the gall bladder had been embedded.

E-j

E-s

The patient died on the seventh day. During all this anxious period the condition of the abdomen and of the wound itself remained so good that I was sure that no peritonitis existed. There was evidently some consolidation in the right base, but the patient's condition seemed worse than could be accounted for by this alone. I was so sure that I had done the operation correctly, that I never once suspected the true cause of the unusual condition—division and ligation of the hepatic duct. A post-mortem examination through the incision showed that the cut ends of the hepatic duct lay free in the wound. There was no sepsis and the tissues looked exactly as they had done when I closed the wound after operation, except that the tie had been pulled off the cystic duct and there was no tie on the proximal end of the hepatic duct—*where I remembered having placed one at the time of the hemorrhage, and had supposed the duct was a vein.*

In other words, I had made an error of skill of the most gross character, and even then failed to recognize that I had made it. More than that, I would not have believed it, unless I had made the post-mortem examination myself and seen it with my own eyes. It was then clear why the intense pain came in the first 24 hours (total biliary obstruction from ligation of the hepatic duct); why it abated when the biliary discharge came (hyperdistention of the duct pushed off the tie); why the jaundice came even when the wound was discharging bile (absorption of bile in the blood for the first 24 hours), and why the abdominal condition was good (the wound was clean).

I think the patient died from pneumonia, but she could not have lived with a divided hepatic duct, and she might have survived the pneumonia if not handicapped by the temporary biliary obstruction.

To such errors experience owes its value. Some of the knowledge thus gained cannot be transmitted, but it needs only this case to teach me that if a case of cholecystectomy shows excessive pain in the first 24 hours which abates on the second day at the time of slight jaundice and an excess of biliary discharge, probably the hepatic duct has been cut and ligated, even if the surgeon who operated is sure that it was not.

78. Dec. 16, 1912. Female—54. Had been operated on by E. A. C. three years previously for cancer of the breast. For more than a year before entrance she had showed symptoms of a metastasis in the dorsal spine. There was intense girdle pain, excessive nausea and incessant vomiting.

For three weeks no nourishment had been retained and even a grain of morphine in 24° failed to keep her comfortable. She was taken into the hospital for diagnosis and an X-ray exam. of the spine. The latter showed a well-marked defect in the body of a dorsal vertebra. Abdominal operation was considered because for years she had had symptoms of gallstones and it was felt that possibly the latter might be causing the present symptoms. Operation was decided against by E. A. C. on the ground that the patient's condition was too poor and offered very little hope. Emaciated, almost pulseless, she was taken home to die.
Result: After her return home this patient was treated by her husband (a physician) and another physician and by a Christian Scientist. For several weeks she lay between life and death but eventually recovered. On Aug. 26, 1913, her husband wrote as follows: "My dear doctor: I am glad to report that Mrs. ——— is gaining every day. She has gained six pounds since the first day of July. She is better than she ever has been. She is able to eat things she has never been able to eat before since she was twenty years old, and digest them perfectly without any trouble. Has no gases and is free from pain of any kind in her spine. I feel satisfied that her trouble was gallstones, and I believe she expelled a large one on the 25th or 26th of December, as on that day we had a great deal of trouble during a movement. And after that time I examined and weighed everything that entered her stomach or left her, but she certainly is better than she has been for years." E-d? P-d

This was certainly a recovery "when the doctors had given her up." It was as miraculous as any surgical "cure" that I have ever seen. Should it be placed to the credit of Christian Science or added to the lists of the Follies of Wisdom, at least it will always leave me with some hope for hopeless cases. (E. A. C.) On May 2, 1914, reported well. July 29, 1915—Husband reports symptoms suggestive of recurrence in lungs; dyspnœa, loss of weight, and abdominal attacks requiring morphia. Aug. 21, 1916—Husband reports that on Dec. 3, 1915, an exploratory laparotomy for pelvic symptoms was done by another surgeon. Metastases in the liver, and other abdominal metastases were found. At present, patient is in fair condition and still enjoys life. Mar. 23, 1917—Seen at patient's home. Is able to sit up and obtains much comfort from Christian Science. Somewhat emaciated. Abdomen greatly enlarged. Evident metastases in cervical glands.

79. Dec. 20, 1912. Female—68. Carcinoma of the right side of the tongue. Op. (E. A. C. and G. W. M.)—Removal of right half of the tongue and dissection of the right side of the neck. Drainage. Path. report—Cancer. Comp.—None. O K
Result: Feb. 25, 1917—Died of apoplexy. Had had no recurrence of cancer.

80. Dec. 22, 1912. Male—71. Hematuria from hypertrophied prostate. Op. (E. A. C. and G. W. M. Spinal anæsthesia by Dr. Freeman Allen)—Suprapubic prostatectomy. Comp.—Double epididymitis. Re-entry May 19, 1913. Transient attack of epididymitis which quieted down with rest. E-s
Result: Aug. 23, 1913—Well. Bacteriuria. Mar. 30, 1915—Died of angina pectoris and grippe.

81. Dec. 30, 1912. See note on case 125.
Result: July 31, 1916—Dr. B. reports, "Well." O K

82. Dec. 30, 1912. Female—30. Dysmenorrhœa. Op. (G. W. M.)—Dilatation and curettage. O K
Result: Sept., 1913—Well.

83. Jan. 10, 1913. Male—8. Congenital right inguinal hernia. Op. (G. W. M.)—Radical cure of right inguinal hernia. Comp.—None.
O K *Result:* Aug., 1913—Well. Re-entry, Mar. 14, 1913—Left inguinal hernia. Op. (G. W. M.)—Radical cure. Comp.—None.
Result: Aug. 8, 1916—Dr. M. reports, "Perfectly well May, 1916."

84. Jan. 11, 1913. Female—23. Epigastric pain and distress. Vomiting.
P-r Diag.—Duodenal ulcer. Operation advised and refused, diet prescribed.
Result: Sept., 1913—Stomach still "weak," but able to work as housemaid. Occasional vomiting.

85. Jan. 22, 1913. Female—57. Cancer of cervix uteri. Con't—Dr. Farrar Cobb, who advised ligation of internal iliac arteries, as growth was too extensive for radical operation. Operation refused.
P-d *Result:* Patient has had X-ray treatment through the abdominal wall by a "specialist" in the regular profession. Aug., 1913—No appreciable change in condition. May, 1914—Death has been reported without exact date.

86. Jan. 23, 1913. Female—36. For several years had had a chronic cough with a small amount of sputum which was occasionally blood-tinged. Repeated examinations by specialists had failed to reveal physical signs in the nose, throat or chest, or of tubercle bacilli in the sputum. On Jan. 23, 1913, she was suddenly taken with an epileptiform seizure.
E-d She was seen in consultation by Dr. E. W. Taylor and by Dr. Harvey Cushing, and on Feb. 15, 1913, was removed to the Brigham Hospital
P-d to be under Dr. Cushing's care. After thorough examination she was subjected to a decompressive craniotomy under the pre-operative diagnosis of brain tumor. Great intracerebral pressure was found, but even after the operation no localizing signs developed.
Result: She died soon after. Autopsy showed a huge brain abscess and a chronic bronchiectasis to which it was probably due.

87. Jan. 23, 1913. Female. Tumor in the lower abdomen extending into post cul-de-sac. Previously had had three operations by other surgeons for salpingitis. Pre-op. diag.—Cyst of broad ligament. Op. (E. A. C. and G. W. M.)—Excision of multiple cystic tumors probably arising
O K from right ovary. A gallstone removed and gall bladder sutured. Careful peritoneal plastic, covering raw surfaces; left ovary, though adherent, not removed. Comp.—None.
Result: Aug. 1, 1915—Physician states that she is well. Aug. 7, 1916—Husband telephones that she is well.

88. Jan. 25, 1913. Female—26. Breast abscess. Op. (G. W. M.)—Opened
O K and drained. Comp.—None.
Result: Aug., 1913—Well.

89. Jan. 27, 1913. Male. Acute appendicitis. Under the care of Dr. F. B. Harrington. Op. (F. B. H.)—Appendectomy and drainage. Comp.—None.
O K *Result:* Well in spring of 1913. (F. B. H.) July 19, 1915—Exam. Scar solid. No abdominal symptoms. Has since been operated on by another surgeon for tonsils and adenoids. Acne. July 31, 1916—Well. Acne "since he had appendicitis."

90. Jan. 27, 1913. Stout female—36. Abdom. pain of 12 hours' duration. Pre-op. diag.—Subacute appendicitis. Op. (E. A. C. and G. W. M.)—Appendectomy. Appendix showed evidence of a previous attack but
E-d no sign of acute inflammation. Comp.—None.
Result: Aug., 1913—Well. Aug. 18, 1915—Now has symptoms of gallstones. Op. advised. Scar solid.

91. Feb. 1, 1913. Female—22. Ugly scar on upper lip. Op. (E. A. C.)—Completion of a plastic operation previously done by E. A. C. Comp. —None. **O K**
Result: Nov., 1913—Appearance greatly improved. June, 1915—Much improved, but still discontented with scar.

92. Feb. 4, 1913. An elderly man with uncompensated organic heart lesion. Under the care of his private physician. **P-d**
Result: Died Mar. 2, 1913.

93. Feb. 5, 1913. S. female—25. Acute abdominal pain of 6 hours' duration. Pre-op. diag.—Acute appendicitis. Con't—Dr. F. B. Harrington. Op. (E. A. C. and G. W. M.)—Appendectomy. Appendix acutely inflamed but not perforated. Closed without drainage. Comp.—None. **O K**
Result: Aug. 2, 1916—Well.

94. Feb. 13, 1913. A poorly developed female—28. Constipation, vague abdominal pain, backache, frequency of micturition, visceral ptosis and all the signs of intestinal intoxication. Expl. op. (E. A. C. and G. W. M.)—A strictured appendix removed. Marked ptosis. Colopexy by method of Coffey. Ventral suspension of uterus. Comp.—None.
Result: Aug. 26, 1913—Great improvement in general symptoms for months, but recently partial relapse. On the whole, a satisfactory gain and at present gaining (letter). Apr. 28, 1914—Condition decidedly better than before op. July 24, 1915—Some slight improvement from operation, but not well. Has been treated at Clifton Springs Sanitarium during the last winter. Aug. 1, 1916—Letter—Decidedly improved, having gained 25 pounds in weight and considerable strength. Still unable to stand a normal amount of fatigue. **P-d**

95. Feb. 20, 1913. Female—38. Dysmenorrhœa and endometritis. Op. (G. W. M. and E. A. C.)—Dilatation and curettage and ventral suspension. Comp.—None. **O K**
Result: Aug., 1913—Well.

96. Mar. 5, 1913. Male—37. Tumor of left parotid. Pre-op. diag.—Enchondroma. Op. (E. A. C. and G. W. M.)—Cocaine. Excision of tumor which involved facial nerve and proved to be adeno-carcinoma. Comp. —Facial paralysis. Re-entry.—Op. (E. A. C. and G. W. M.)—Radical removal of entire parotid and dissection of neck. **E-d**
Result: Aug., 1913—An enlarged gland beneath sterno-mastoid. Op. advised and refused. (A tumor size of pea had been removed from this patient's eyelid (left) several years before.) Physician reports that patient died on Dec. 24, 1914, of diabetic coma and acute lung infection. **P-d**

97. Mar. 7, 1913. See case 125. **O K**
Result: Sept. 27, 1915—Dr. B. reports, "Well."

98. Mar. 8, 1913. Male—50. Dislocated shoulder; one week duration. Op. (E. A. C. and G. W. M.)—Ether reduction. **O K**
Result: Aug., 1913—Well.

99. Female—30. Acute abdom. pain. Pre-op. diag.—Ovarian cyst with twisted pedicle. Op. refused.
Result: Patient writes on Sept. 15, 1913, that she has been quite well and has gained weight. She has occasional pain in her side and expects to be operated upon later. **P-r**

100. Mar. 13, 1913. See case 125. **O K**
Result: July 31, 1916—Dr. B. reports, "Well."

101. Mar. 14, 1913. Male—40. Double inguinal hernia. Op. (G. W. M.)—Double Bassini. No sac on left side. Comp.—None. **O K**
Result: Aug. 17, 1915—Well. (Dr. M.)

102. Mar. 15, 1913. Female. Attacks of right-sided abdominal pain and general debility. Pre-op. diag.—Chronic salpingitis. Op. (E. A. C. and G. W. M.)—Double salpingectomy and oöphorectomy for adherent
O K tubes, chronic ovarian inflammation. Peritoneal plastic. Comp.—None.
Result: Aug. 24, 1915—Since op. has had menorrhagia, but it is not severe now. Looks well. Has "indigestion." Exam. Scar solid. Uterus freely movable; not tender. Aug. 1, 1916—Letter—"Much better and stronger than last year."

103. Mar. 17, 1913. Male—29. Very large right inguinal omental hernia. Op. (E. A. C. and G. W. M.)—Excision of about 2 lbs. of omentum and Bassini operation. Comp.—None.
Result: Nov. 17, 1913—Well; slight hydrocele. July 20, 1915—Condition same—small hydrocele without tension. Nov. 27, 1916—Re-entered
E-s for radical cure of hydrocele which has grown much larger. Op. (E.
A. C.)—Very thick sac, rough on inside with tubercular projections.
P-r Impossible to distinguish epididymis. Portion of sac excised. Pathologic report, "Some tubular elements resemble those of the epididymis." Comp.—Hematoma developed. Scrotum incised to drain it. In doing this, testicle was cut for about ½ inch. This was sewed up. Hematoma subsided slowly. Removal of testicle advised, but refused by patient. Discharged Dec. 22, 1916, against advice, with scrotum still swollen and with small granulating point on lower wound. Feb. 15, 1917—Letter stating that the testicle had been removed by another surgeon, and was found to be injured in three places.

104. Mar. 18, 1913. S. female—52. Hemorrhoids. Op. (E. A. C. and G. W.
E-j M.)—Clamp and cautery. Comp.—None.
Result: Dec. 9, 1913—Well, except for discomfort from "tabs" and slight itching.

105. Mar. 21, 1913. Male—42. Acute intestinal obstruction of 34 hours' duration. Repeated attacks of abdominal pain for one month. Right iliac abdom. tumor. Pre-op. diag.—Acute appendix abscess. Op. (E. A. C. and G. W. M.)—Excision of an intussusception of small bowel in which the advancing point was a Meckel's diverticulum. Lateral anastomosis and temporary proximal enterostomy which was closed on
E-d the fourth day without ether. Comp.—None.
Result: Sept. 8, 1913—Re-entry for removal of proximal end of bowel which practically made a hernia in scar. Op. (E. A. C. and G. W. M.) —Old scar excised and redundant portion of bowel removed. Careful peritoneal plastic. Comp.—None.
Result: May 2, 1914—Well (exam.). No hernia. Slight pain in scar. Aug. 17, 1916—Physician reports, "Patient has some trouble with bowels, but as well as before intestinal obstruction occurred."

106. Mar. 23, 1913. S. female—32. Large abdominal tumor. Pre-op. diag. —Large fibroid or cyst of ovary. Op. (E. A. C. and G. W. M.)—
O K Hysterectomy for fibroid tumor. Comp.—None.
Result: Aug., 1913—Well. July 22, 1915—Scar O. K. but rather weak. Ever since operation has noticed hot flashing. Aug. 8, 1916—Well, though still has hot flashes.

107. Mar. 24, 1913. Male—40. Recurrent attacks right-sided epididymitis.
O K Op. (G. W. M.)—Epididymectomy. Comp.—None.
Result: Aug. 8, 1916—Dr. M. reports, "Still has thickening in cord on left."

108. Mar. 26, 1913. Female—24. Varicose veins of right leg. Under the
P-d care of Dr. Hermann Bucholz. Op. (H. B.)—Partial excision of veins. Comp.—None.
E-s *Result:* July 25, 1915—Still suffers a good deal from pain in the leg and arch of foot. (Letter to Dr. B.)

109. Mar. 26, 1913. Male—25. Chronic inflammatory epididymitis. Double. Op. (G. W. M.)—Partial double epididymectomy. Comp.—None.
Result: Aug., 1913—Well. Re-entry, Sept. 20, 1913—Remains of right epididymis removed. Drainage. Sinus to stump of left wound removed. Comp.—None. E-j E-d
Result: Nov. 1, 1913—Well. June, 1915—Dr. M. reports: "Although patient has no symptoms, there is still thickening in stump of vas, and twice since operation a small sinus has broken open (Tuber.?), although path. report was chronic inflamm."

110. Mar. 27, 1913. Male—57. Tumor in right iliac fossa. Cachexia; loss of weight and abdominal pain. Pre-op. diag.—Cancer of cecum. Op. (E. A. C. and G. W. M.)—Excision of cecum, ascending colon and a portion of ileum and another coil of small intestine together with a portion of the abdominal wall en masse. Four end closures and two lateral anastomoses of the intestine. Plastic of abdominal wall to cover defect. This operation was done under the principles of anoci-association. It was started with a pulse of 72, took 3½ hours and finished with a pulse of 80. There was no obvious shock and almost no post-operative pain. Comp.—Serous discharge along the course of wick—probably ascitic peritoneal leakage. O K
Result: Apr. 17, 1917—Exam.—Well. Scar rather weak. No evidence of recurrence.

111. Mar. 27, 1913. Male—68. Cystitis and gout which were temporarily relieved by rest in bed. Prostatectomy advised and refused. P-r
Result: July 20, 1915—Writes that he is still alive but gives no details. June 25, 1916—Son reports that he is about the same.

112. Apr. 4, 1913. Stout female—47. Stiff, partially flexed knee and symptoms of dislocation of semilunar cartilage of many years' duration. No relief from a recent ether manipulation by another surgeon. Op. (E. A. C. and G. W. M.)—A damaged semilunar cartilage removed in halves by ant. and post. incisions. Comp.—None except induration in popliteal space, probably from escaping fluid. E-j
Result: Aug. 14, 1913—Patient still limps badly and motion of knee is a little less than 90 degrees, but still improving. Apr., 1914—Much improved. July 21, 1915—Walks without limp, unless tired. Leg serviceable but still cannot bend knee beyond right angle. Has to sidle downstairs. Dec. 30, 1916—Exam.—Walks without limp, but flexion only to right angle.

113. Apr. 6, 1913. Male—12. Acute right-sided abdominal pain. Diag.—Acute appendicitis. Op. (G. W. M.)—Appendectomy. Appendix gangrenous. Comp.—None. O K
Result: Aug. 8, 1916—Dr. M. reports, "Well."

114. Apr. 13, 1913. S. female—46. Irregular fibrous enlargement of both breasts. Pre-op. diag.—Chronic mastitis. Con't—Dr. R. B. Greenough. Op. (E. A. C. and G. W. M.)—Amputation of both breasts. Comp.—None. Path. exam. showed fibrosis with nearly complete disappearance of glandular tissue. In one breast was an area of cancer so small that the whole tumor was visible in low power field of microscope. Comp.—A slight necrosis of edge of skin size half dime. E-s
Result: Aug., 1913—Well, except for a small uncomfortable tab on scar. This was removed under cocaine. Aug. 19, 1916—Letter—Well.

115. Apr. 22, 1913. S. female—30. Clear history of repeated attacks of appendiceal colic. Op. (E. A. C. and G. W. M.)—Appendectomy under local anæsthesia with a few breaths of nitrous oxide. Appendix strictured; filled with concretions. Scarcely any operative or post-operative pain. Comp.—None. O K
Result: Aug. 2, 1916—"I have never felt more absolutely well."

116. Apr. 23, 1913. Nervous female—24. Persistent pain in right iliac region worse at ctm. Pre-op. diag.—Cecum mobile. Op. (E. A. C. and G. W. M.)—Appendix was found plastered on cecum by a "Jackson's veil." Partial rotation of cecum so that ileum entered from behind;
P-d appendectomy; appendix normal. Comp.—None.
Result: Greatly improved by operation, but still has vague pain on right of abdomen. July 27, 1915—Scar O. K. Many vague complaints, including dysmenorrhœa, dyspareunia, leucorrhœa, and sterility. Looks perfectly well. Feb. 12, 1917—Exam.—Much depressed. No benefit from operation. Nevertheless, physical examination is negative.

117. Apr. 24, 1913. Female—26. Persistent abdominal discomfort, nausea, constipation, weakness and nervousness. Came for diagnosis and X-ray examination. A diagnosis of general ptosis was made and operation
P-d was not advised. Careful instruction in hygiene was given.
Result: Aug. 29, 1913—Considerable improvement but same symptoms persist (letter). Aug. 6, 1915—Has improved steadily, but this summer has had several attacks of "colitis." Nov. 10, 1916—Letter—Well, except for some attacks of colitis last winter.

118. Apr. 30, 1913. Male—38. Dislocation of wrist and fracture of carpal scaphoid of several weeks' duration. Under ether without incision the dislocation was reduced and the scaphoid fragment replaced by E. A. C.'s method. Comp.—None.
P-r *Result:* Aug., 1913—Fair motion. Improving. Aug. 8, 1915—Exam.—Good serviceable wrist, but some tenderness and pain on forced flexion and extension. Nov. 29, 1916—Strained wrist a week ago. States that wrist bothers him a little all the time. Advised to have scaphoid fragment removed. Refused.

119. May 2, 1913. S. female—43. E. A. C. had operated for cancer of the breast 3 years before. Palpable supraclavicular gland. Op. (E. A. C. and G. W. M.)—Glands removed from supraclavicular space proved to
E-d be normal. Comp.—None.
Result: Aug., 1913—Well. May, 1914—Has since been op. for glands in opposite axilla. Died at Huntington Hospital (No. CI—15—20) on Mar. 5, 1915, of metastases in lungs.

120. May 9, 1913. Male—25. Traumatic amputation of finger. Op. (G. W. M.)—Reamputation. Comp.—None.
O K *Result:* Aug., 1913—Well. Aug. 8, 1916—Dr. M. reports, "Small piece of new finger nail removed in July, 1916."

121. May 12, 1913. S. female—24. Recurrent attacks of pain in right iliac fossa, dysmenorrhœa and prolapse of the right ovary. Pre-op. diag.—Chronic appendicitis. Op. (E. A. C. and G. W. M.)—Removal of a strictured appendix and suspension of right ovary. Comp.—None.
Result: Apr., 1914—Well. July 30, 1915—At present somewhat run down, but symptoms for which operation was undertaken were completely relieved. Scar solid. Aug. 12, 1916—Exam.—Married since
O K operation. Lacerated from instrumental delivery from which she is still convalescent. No further symptoms similar to those previous to operation. Perineorrhapy advised. Re-entered Dec. 29, 1916. Op. (E. A. C. and W. P. C.)—Extremely bad lacerations of the cervix, lateral walls of the vagina and anal sphincter were repaired by plastic operation. Levator ani on left side had been practically destroyed, and vaginal scar had healed to inner side of pubes. Comp.—Slight post-operative hemorrhage and grippe. June 20, 1917—Husband reports, "Well."

122. May 15, 1913. M. female—42. Diagnosis—Gallstones. Lost her courage
P-r and went home without operation.
Result—No report.

123. May 19, 1913. Female—29. Admitted as an emergency. Hysteria.
Result: Sept., 1913—No report. Aug. 24, 1915—Physician reports improvement. **O K**

124. May 19, 1913. Female—45. Hematemesis, distress and vomiting. Also profuse uterine hemorrhage and abdominal tumors. Pre-op. diag.—Ulcer of stomach and uterine fibroid. Op. (E. A. C. and G. W. M.)—No ulcer. Hysterectomy for multiple fibroid tumors. Appendectomy. Comp.—None. **E-d**
Result: Aug., 1913—Progressive improvement, but has not yet recovered from her chronic invalidism. July 21, 1915—Still has hemoptysis, but this is evidently not from stomach. Hot flashes, indigestion, and general invalidism. Not exam. Physician writes that patient died June 5, 1916, of hemorrhage from stomach and bowels, in spite of transfusion which temporarily did much good. **E-s?**

125. May 19, 1913. This case and also cases 62, 81, 97, 100, were tertiary cases treated with salvarsan. All were improved. No more cases of this kind will be accepted. **P-d**
Result: Sept. 27, 1915—Dr. B. reports that patient died of specific disease of spinal cord.

126. May 20, 1913. Female—36. Three attacks of right-sided abdominal pain. Pre-op. diag.—Chronic appendicitis. Op. (G. W. M.)—Appendectomy. Freeing of abdominal adhesions. Comp.—None. **O K**
Result: Aug. 8, 1916—Dr. M. reports, "Well, 1915."

127. May 22, 1913. Male—49. Acute empyema of unknown origin, preceded by an alveolar abscess. Condition very poor. Op. (E. A. C. and G. W. M.)—Resection of rib and drainage. Comp.—None.
Result: Sept. 25, 1913—Still discharge from wound. General condition excellent. June 8, 1915—Later thoracoplasty at P. B. B. Hosp. Sudden collapse during dressing at dispensary at P. B. B. Hosp. Admitted, case No. (2557). **P-d** **C**
Result: Died twelve days later—probably from cerebral embolism and brain abscess.

128. May 23, 1913. Male—57. Right inguinal hernia. Op. (E. A. C. and G. W. M.)—Local anæsthesia. Ferguson method. Comp.—None. **O K**
Result: Aug. 9, 1916—Letter—Well.

129. May 26, 1913. Female—26. Severe constant abdominal pain in lower left quadrant. Pre-op. diag.—Chronic salpingitis and retroversion. Op. (G. W. M.)—Left salpingectomy. Left oöphorectomy, appendectomy and ventral suspension. Comp.—None.
Result: Aug., 1913—Well. June, 1915—Dr. M. reports patient better, but recently has had signs of pelvic inflammation which have subsided. Aug. 8, 1916—Dr. M. reports: "Had abdominal pain for one month in January, 1916. Since then has gained weight and is well except for flat foot." **E-j**

130. May 26, 1913. Male—44. Septic dog bite of leg and popliteal abscess. Op. (E. A. C.)—Incision and curettage. Comp.—None. **O K**
Result: Apr. 1, 1916—Letter—Well.

131. May 28, 1913. Male—52. Hand crippled by a painful swelling of the tendon sheaths of the wrist and palm extending into the little finger. Pre-op. diag.—Tuberculous tenosynovitis. Op. (E. A. C. and G. W. M.)—Amputation of little finger with thorough dissection of gelatinous tissue from tendons of palm and wrist, the annular ligament being divided. Closed without drainage. Path. report showed chronic inflammatory tissue not inconsistent with a tertiary or tuberculous lesion. Wasserman reaction was positive. Comp.—None. **E-d**
Result: Aug. 20, 1915—Well. Useful hand but ring finger does not have quite perfect flexion.

132. May 29, 1913. An obese male—42. Right inguinal hernia. Op. (G. W.
O K M.)—Radical cure of right inguinal hernia.
Result: June, 1915—Well. (Dr. M.)

133. June 3, 1913. Male—68. Ulcerated carcinoma of floor of mouth at frenum and attached to gum. Op. (E. A. C.)—Wide excision of ulcerated area with removal of 1½ inches alveolar process and dissection of
O K submental and submaxillary glands through floor of mouth. Wound packed without sutures. Comp.—None.
Result: Aug., 1913—Well. Minute sinus in gum. May 2, 1914—Reported to be well. Dec. 9, 1916—Well.

134. June 4, 1913. Male—69. Right inguinal hernia. Op. (E. A. C.)—Bassini. Double sac. Comp.—None.
O K *Result:* Aug. 23, 1916—Letter—Well. "My back is about the same. I still play golf. Got 90 yesterday for 18 holes. Used to go around in the 80's. My handicap is 26. Play tennis also. That is too strenuous for an old chap of 73."

135. June 6, 1913. Thin feeble female—58. Marked visceral ptosis; complaining of vague abdominal pain and distress. X-ray exam., etc.
O K Operation not advised.
Result: Aug. 2, 1916—Physician reports that patient was "never better in her life." She has never been operated upon.

136. June 11, 1913. M. female—48. General abdominal discomfort and nervousness. Vague symptoms which have been called "sciatica." Polypoid mass protruding from the cervix uteri. Op. (E. A. C. and G. W. M.)—Polyp proved a pedunculated cyst of cervical canal. Excised with a portion of base. Plastic repair of cervix. Comp.—None. Path. report—Benign.
O K *Result:* Aug. 21, 1913—Much better, but still has leucorrhœa. Aug. 20, 1915—Exam.—A good cosmetic result on cervix. Looks and feels well, but "nervous." No leucorrhœa. Aug. 11, 1916—"Last winter I was troubled some with dizziness. I saw a doctor who said my blood pressure was forty above normal, but except for that I have been well. I have no pain or discharge of any kind, and seem perfectly well in the parts where I was operated on. In fact, am better than for a great many years."

137. May 29, 1913. W. female—43. Widow of an old patient of E. A. C.'s with same disease. Incipient tuberculosis. Slept on roof for 25 days pending admission to state sanitarium. Con't—Dr. John B. Hawes.
P-d July 26, 1915—At Westfield State Sanitarium. Fairly comfortable with gas injections of pleural cavity.
Result: Aug. 15, 1916—Still under treatment at Westfield Sanitarium.

138. June 21, 1913. Male—69. Indigestion and epigastric pain for many years. Pre-op. diag.—Duodenal ulcer. Op. (E. A. C. and G. W. M.)—Post. gastroenterostomy for duodenal ulcer. (Anoci.) Comp.—Serous discharge from wound causing slight delay in healing.
E-s *Result:* June, 1915—Well. Sept. 8, 1916—Small hernia in scar which is not troublesome. An attack of "bronchitis" last winter which left him somewhat "pulled down." Better now. No digestive symptoms when careful about diet.

139. June 30, 1913. Male—39. Incompetent sphincter ani due to fistula operation many years before. Op. (E. A. C. and G. W. M.)—Scar
O K excised and edges of sphincter approximated. Comp.—None.
Result: Aug. 18, 1913—Improved a great deal but not yet perfect control of gas. Apr., 1916—Well. Good control.

to permit irrigation of the colon for chronic intestinal stasis. The opening had contracted and was painful. Op. (E. A. C.)—Novocaine. Excision of scar tissue and resuture edge of bowel. Catheter tied in. Comp.—None. O K
Result: Sept., 1913—The result of the original operation has been excellent; gain in weight and strength and a sense of well-being having replaced constant distress, depression and malnutrition. The second operation was also efficacious.

141. July 8, 1913. S. female—65. Chronic indigestion and epigastric pain. Stiff and painful right shoulder. Pain in left hip. Pre-op. diag.—Duodenal ulcer and adherent subacromial bursitis. Op. (E. A. C. and G. W. M.)—Infolding ulcer and post. gastroenterostomy. Manipulation of shoulder. Comp.—None. O K
Result: Oct., 1913—Well except for hip, which is still troublesome (exam.). Aug. 16, 1916—Exam.—Well. Scar solid.

142. July 9, 1913. Large well-developed male—45. Recurrent attacks of indigestion and epigastric distress. Pre-op. diag.—Duodenal ulcer. Op. (E. A. C. and G. W. M.)—A contracted pylorus. First portion of duodenum fixed high and attached to gall bladder by adhesions (congenital). No ulcer demonstrable. Appendix twisted and kinked and wholly adherent behind cecum. Marked Lane's kink divided but no plastic done. Appendectomy. Duodenal adhesions not disturbed. Comp.—None. E-d
Result: Sept., 1913—Well. July 14, 1915—Re-entry. No abdominal symptoms. For a year has had an indurated area in submaxillary region. Operation showed that this was due to a calculus in the submaxillary gland. The gland and calculus were removed entire, under the impression that malignancy or actinomycosis existed. No comp. Path. report—Sclerosis of submaxillary gland. July 15, 1916—Well. Scars normal. "Nervous."

143. July 16, 1913. M. female—47. Cyst of right lobe of thyroid, size of chestnut. Op. (E. A. C. and G. W. M.)—Enucleation of cyst. Comp.—None. O K
Result: Aug. 3, 1916—Letter—"I have been perfectly well since you operated, and the scar is not troublesome; in fact, is almost indistinguishable."

144. July 19, 1913. Male—48. Infected wound of hand. Op. (G. W. M.)—Opening and cleaning wound. Comp.—Cellulitis to elbow. O K
Result: No report.

145. July 24, 1913. Male—43. Persistent severe epigastric pain. Pre-op. diag.—Cancer of stomach. Op. (E. A. C. and G. W. M.)—Exploration showed inoperable cancer cardiac end of stomach and large multiple soft metastases of liver. Comp.—Although nothing beyond exploration was attempted, the pain was greatly relieved. E-j E-d
Result: The patient died about 2 weeks after his return home. Autopsy showed masses in liver to be broken down malignant disease. Primary growth at cardiac opening of stomach and lower œsophagus.

146. July 22, 1913. Male—74. Large inoperable cancer of the thyroid causing extreme dyspnœa by displacement of the trachea. Con't—Dr. C. A. Porter. Op. was undertaken by Dr. Porter as a purely palliative measure. Tracheotomy was accomplished by removal of a portion of the growth. Comp.—Severe secondary hemorrhage and sepsis. P-d E-s E-j
Result: Died on the tenth day (Aug. 3, 1913).

147. July 30, 1913. Male—9. Compound fracture lower end of humerus.
E-s? Op. (G. W. M.)—Cleansing and replacement of fragments. Comp.—None.
P-d? *Result:* Aug. 10, 1915—Mother reports a satisfactory result with some (gunstock?) deformity.

148. Aug. 12, 1913. Male—63. Sarcoma ulna; size olive, previously incised by another surgeon. Amputation advised but refused. Op. (E. A. C.)—Excision tumor and (4 in.) adjacent portion ulna, with much of surO K rounding soft parts. Plastic on skin to fill defects. Comp.—None. Path. report—Giant celled sarcoma of periosteum, not involving bone. *Result:* July 29, 1915—Local phys. reports a perfect result; hand almost as strong as before op. Does same work. Died July 21, 1916—Death certificate: Chronic nephritis and arterio-sclerosis.

149. Aug. 13, 1913. Male—54. Recurrent cancer of lip. Previous op. at
E-c M. G. H. E. S. 182344. Op. (G. W. M.)—V-shaped excision. No dissection of neck. Comp.—Stitch sepsis and spreading of wound.
Result: Aug. 8, 1916—Dr. M. reports, "Well in Jan., 1916."

150. Aug. 25, 1913. Male—43. Abscess of leg, opened and packed. Comp.
O K —None.
Result: July 20, 1915—Well.

151. Sept. 1, 1913—Female—46. Emergency. Pre-op. diag.—Acute cholecystitis. Op. (E. A. C.)—Revealed old and new adhesions about gall bladder, which were not disturbed because pelvic condition seemed more urgent. A large pelvic abscess was drained and both tubes removed. (Pyosalpingitis.) Left ovary containing old hemorrhagic cyst, size orange, removed. (Multilocular cystoma.) Uterus, which was large and boggy, was curetted. Adhesions, causing partial obstruction of sigmoid, divided. Comp.—Sepsis from drainage area involved wound slowly, so that it had to be laid open and packed. Satisfactory recovery. Re-entry Jan. 1, 1914, with jaundice and other symptoms justifyP-r ing diagnosis of stone in common duct. Op. (E. A. C.)—A small contracted gall bladder containing a large stone and connected by an old fistula with duodenum (see Case 24. This is a second case illustrating E. A. C.'s explanation of Courvoisier's law). A large stone was also removed from the common duct (?) through dense inflammatory tissue. Cholecystostomy. Choledochostomy.
Result: July 25, 1915—Letter—Well. Has since had one severe uterine hemorrhage. Aug. 3, 1916—Well except for irregular metrorrhagia, which at times is severe. Abdominal scar bulges throughout. Uterus of normal size. No abdominal symptoms. Digestion good. Curetting advised for probable uterine polyp.

152. Sept. 7, 1913. Female—26. Extra-uterine pregnancy. Op. (G. W. M.)—Salpingectomy (left) and removal of fœtus. Comp.—None.
O K *Result:* Aug. 23, 1915—Dr. M. reports, "Well, except for chronic organic heart disease. Scar O. K." Aug. 8, 1916—Dr. M. reports, "Well, except for 'heart trouble' in Feb., 1916."

153. Sept. 8, 1913. Male—41. Old fracture internal condyle femur. Op.
O K (G. W. M.)—Removal of spicule of bone which was causing annoyance. Comp.—None.
Result: Nov. 1, 1913—Well.

154. Sept. 8, 1913. Female—25. Hydramnios. Op. (G. W. M.)—Delivery
O K of twins. One alive (4 mos.) and the other macerated. Comp.—None. Death of fœtus.
Result: Nov. 15, 1913—Well.

155. Sept. 14, 1913. Male—66. Emergency. Intestinal obstruction. Op. (E. A. C.)—Gigantic dilatation of a freely movable cecum of fetal type. The appendix and tip of cecum were adherent at left costal margin and volvulus had occurred. Excision of cecum and ascending colon with a portion of the ileum. Lateral anastomosis. Drainage of wound which was soiled. Comp.—Sepsis in portion of wound about wick; not serious. **E-c**
Result: Aug. 17, 1916—Physician reports well and at work as blacksmith.

156. Sept. 15, 1913. Male—40. Persistent hyperacidity and epigastric pain. Pre-op. diag.—Duodenal ulcer. Op. (E. A. C.)—Adhesions holding pylorus high under liver, thought to be congenital rather than inflammatory. A plastic operation was done to free these. The appendix was then found to be adherent in pelvis, and was with great difficulty removed by enlarging the wound downward. No ulcer was found. Comp. —Three successive pulmonary emboli. Slight sepsis in wound (largely due to cough). Recovery under care of Dr. John B. Hawes. This patient barely recovered from emboli and was feeble for many weeks. **E-j or E-c**
Result: May, 1915—Well. Weak scar—almost a hernia. July 19, 1915 —Well. "About the only unpleasant result of my illness is that I am somewhat short of my physical and nervous strength." Aug. 7, 1916— Telephone—Much better than before operation, but still occasional attacks of "acidity." Wound does not trouble him.

157. Sept. 16, 1913. Male—19. Tuberculous cervical gland under angle of right jaw. Op. (E. A. C.)—Excision of gland. Comp.—Slight serous discharge. **O K**
Result: Sept. 14, 1915—Well. One small gland size of pea. Aug. 22, 1916—Letter—No further trouble.

158. Sept. 23, 1913. Female—15. Chronic appendicitis. Op. (G. W. M.)— Adherent appendix removed. Comp.—None.
Result: Dec. 1, 1913—Well. Aug. 17, 1915—Phys. reports occasional pain in right side. Aug. 8, 1916—Dr. M. reports, "Still has abdominal trouble and constipation." Report in May (Dr. Boos). **P-d?**

159. Sept. 29, 1913. Female—45. Fibroid of uterus. Op. (G. W. M.)— Hysterectomy and appendectomy. **C**
Result: Sudden death on 7th day from pulmonary embolus.

160. Oct. 25, 1913. Female—60. Subacromial bursitis (adherent). Op. (E. A. C.)—Adhesions broken under ether without incision. Abduction maintained ten days.
Result: July 1, 1915—Well. Convalescence was slow and painful. Recently (sciatica), but shoulder is well. See Case W. S. 202633, Mass. Gen'l Hosp. records. July 24, 1916—Sacro-iliac symptoms passed away spontaneously. No further trouble with shoulder. **O K**

161. Nov. 3, 1913. Male—34. Drug habit. No operation.

162. Nov. 17, 1913. Male—33. Salvarsan. Under care of Dr. Wm. F. Boos.
Result: July 31, 1916—Dr. B. reports, "Well." **O K**

163. Nov. 18, 1913. Male—32. Chronic appendicitis. Op. (E. A. C.)— Strictured appendix removed. Comp.—None. **O K**

164. Dec. 14, 1913. Female—25. Ureteral catheterization. X-rays, etc., for diagnosis. Intermittent hydronephrosis (?). Chronic endometritis. Fissura ani. Refused operation. Later curettage of uterus and dilatation of anus by her own physician. **P-r**
Result: Unknown.

165. Dec. 21, 1913. Emergency case of syncope. Pulmonary tuberculosis. Remained in hosp. over night. **O K**
Result: No report.

166. Dec. 26, 1913. Female—35. Acute appendicitis. Under the care of Dr. Ed. P. Richardson. Op. (E. P. R.)—Appendectomy. No drainage.
O K Comp.—None.
Result: Sept. 9, 1915—Scar solid. Well except for constipation, which was present before op. June 2, 1916—Died of acute nephritis.

167. Dec. 30, 1913. Female—40. Prolapse of uterus. Op. (E. A. C.)—Appendectomy (normal). Hysterectomy by Crile's method for prolapse. Comp.—None. Oct. 16, 1914—Cystocele which protrudes when recumbent, but disappears when standing. Remaining ovary tender; size of
E-j golf ball. Some vague discomfort, but practically well.
Result: Sept. 24, 1915—Husband reports patient well except for occasional pain in side. Feb. 25, 1916—Condition same. June 23, 1917—Small abscess has recently come in abdom. scar and discharged several silk sutures.

168. Dec. 31, 1913. Female—35. Prolapse of uterus; uterine polyp; perineal lacerations. Op. (E. A. C.)—Hysterectomy and fixation of vaginal stump to abdominal wall. Appendectomy (ap. contained pus and pinworms). Extensive perineal lacerations not repaired owing to patient's
O K poor condition. Comp.—None.
Result: July 31, 1915—Well. No abdominal symptoms. Scar O. K. When recumbent, cervix is low, but when standing is very high. Chief complaint now is pruritus vulvæ, which was present before operation and is occasionally still troublesome. Pinworms? Perineal repair not necessary. Aug. 14, 1916—Letter—Well, except for pruritus ani.

169. Dec. 31, 1913. Male—53. Double inguinal hernia. Op. (G. W. M.)—
O K Double Bassini. Comp.—None.
Result: No report.

170. Jan. 5, 1914. Male—29. Varicocele. Op. (G. W. M.) Comp.—None.
O K *Result:* Aug. 18, 1915—Friend reports, "Well."

171. Jan. 7, 1914. Male—20. Feruncle on elbow. Lymphangitis. No. op. Jan. 15, 1914, and Feb. 8, 1914—Re-entries for other feruncles. Treated by Dr. A. E. Steele with vaccines.
O K *Result:* July 27, 1915—Patient convinced that vaccines caused improvement. July 31, 1916—Re-entered with a septic pilonidal sinus which has troubled him since January. Sinus excised with local anæsthesia. Still has some acne and constipation. Dec., 1916—Exam.—Well.

172. Jan. 8, 1914. Male—40. Left varicocele and enlarged ext. ring almost amounting to hernia. Weak right ing. ring. Chronic epididymitis. Op.
O K (E. A. C.)—Excision of varicocele and Ferguson operation for hernia without ligation of sac. Comp.—None.
Result: Aug. 3, 1916—Letter—Well.

173. Jan. 12, 1914. Female—49. Cancer of stomach. Case No. 859 at Peter
E-d Bent Brigham Hospital, where operation had been advised against. Op. (E. A. C.)—Local anæsthesia. Exploration. Condition inoperable.
P-d Comp.—None.
Result: Died Sept. 17, 1914.

174. Jan. 13, 1914. Female—35. Fibro-cystic tumors of right breast. Menorrhagia. Op. (E. A. C.)—Excision of mammary gland through Warren incision. Comp.—Collection of serum twice evacuated by director.
E-c? *Result:* Aug. 6, 1915—Scar O. K., but the artificial breast has disappeared. Menorrhagia. May 15, 1916—Scars of operation O. K. No
O K further trouble. Still has menorrhagia and indigestion. Recently dislocated right internal semilunar cartilage. Treated conservatively by E. A. C.

175. Jan. 22, 1914. Male—26. Chronic appendicitis. Op. (E. A. C.)—Appendectomy under local anæsthesia. Strictured appendix. Comp.—
O K None.
Result: Aug. 7, 1916—Physician reports, "Well."

176. Jan. 27, 1914. Female—29. Prolapse of uterus recurrent after two previous operations. Op. (G. W. M.)—Ventral fixation; double salpingectomy; appendectomy; perineorrhaphy. Comp.—Sepsis in abdominal fat. E-c
Result: July, 1915—Well. Exam. by Dr. M. Scar solid. Uterus in good position. Aug. 8, 1916—Dr. M. reports, "Slight cystocele." E-s

177. Jan. 27, 1914. Female—26. Middle ear abscess. No operation. Under the care of Dr. T. J. Shanahan. O K
Result: Aug. 3, 1915—Letter from Dr. S. says, "Hearing is O. K. and no subjective symptoms."

178. Jan. 29, 1914. Female—26. Persistent albuminuria, without other symptoms of nephritis. Pain in right side of abdomen and back. X-ray showed distinct round shadow in neighborhood of right ureter near bladder. Ureteral catheterization by Dr. Young, who diagnosed suspicious shadow as phlebolith. Op. (E. A. C.) on diagnosis of chronic appendix and possible ureteral calculus. A strictured appendix removed and also a phlebolith which lay in direct contact with ureter. Comp.—None. P-d
Result: Aug. 1, 1915—Free from all pain since operation, but slight albuminuria, without renal sediment, persists. July 27, 1916—Has had a severe nervous breakdown, due possibly to the nephritis, which is worse. Is in charge of Dr. Henry A. Christian, Peter Bent Brigham Hospital (No. 7835), for nephritis. No symptoms like those for which she was operated upon. Feb., 1917—Back at work. Feels well.

179. Jan. 29, 1914. Female—45. Pre-op. diag.—Acute appendicitis. Op. (G. W. M.)—Appendix was obliterated and retrocecal. Removal of pyosalpynx size fist. Comp.—None. E-d
Result: June, 1915—Hernia site of drainage. Otherwise well. (Dr. M.) Aug. 8, 1916—Dr. M. reports, "Large hernia." E-s?

180. Feb. 3, 1914. Male—40. Renal colic. X-ray showed no stone. Pain soon subsided. No op. O K
Result: Aug. 5, 1915—Letter—Well. No other attacks.

181. Feb. 8, 1914. Male—25. Dislocation of semilunar bone of wrist. Op. (G. W. M.)—Excision of semilunar bone. Comp.—None. O K
Result: Aug. 9, 1915—Dr. M. reports, "Useful wrist with slight pain on forced extension."

182. Feb. 8, 1914. Male—38. Acute appendicitis and general peritonitis. Op. (G. W. M.)—Gangrenous appendix removed. Drainage. Comp.—None. O K
Result: Nov. 1, 1916—Physician reports, "Well."

183. Feb. 10, 1914. Male—35. Acute appendicitis. Op. (G. W. M.)—Appendectomy. Drainage. Comp.—None. O K
Result: Aug. 8, 1916—Dr. M. reports, "Perfectly well in June, 1916."

184. Feb. 12, 1914. Female. Glossitis. No op. Under care of Dr. G. W. M. O K
Result: No report.

185. Feb. 16, 1914. Female—51. Pre-op. diag.—Cholecystitis. Op. (G. W. M.)—Cancer of the liver. Inoperable. Comp.—None. P-d
Result: No report.

186. Feb. 18, 1914. Male—47. Epithelioma of nose near inner canthus of eye. Op. (E. A. C. and G. W. M.)—Excision of growth and closure of defect by transplantation of flap. Comp.—Slight parting of edge of flap. E-s
Result: Aug. 29, 1915—Scar barely visible. No evidence of recurrence. Tear duct displaced about 1 mm., so that it does not functionate. Bit of int. canthus excised and a stitch put in to turn tear duct in right

place. Choleision (?) to outer side duct. Aug. 5, 1916—Physician reports, "A perfect result." No further trouble with the tear duct.

O K 187. Feb. 28, 1914. Female—37. Septic finger. Op. (G. W. M.)—Incision and drainage. Comp.—None.
Result: No report.

188. Mar. 5, 1914. Female—34. Obstructive jaundice. Pre-op. diag.—Stone in common duct. Op. (E. A. C.)—Two stones impacted in a fistula between contracted gall bladder and duodenum. Another in common duct fixed in papilla. A large, firm, elastic mass in region of head of pancreas—considered malignant. Transduodenal choledochostomy without drainage. Stones removed from fistula and from common duct were all three of the small mulberry variety. (This therefore is a
O K further proof—and a most convincing one—that contracted gall bladder will generally be found connected with the gut by old fistulæ if a stone is present in the common duct.) (See cases 24 and 151.) (This operation was done under the principles of anoci association and there was no post-operative pain. On the fourth night she went without permission to the bathroom alone, defecated and returned to bed!) Comp.—None.
Result: July 30, 1915—Letter—Well. Has girl four months' old. Aug. 7, 1916—Friend reports that she is well.

189. Mar. 10, 1914. Male—50. Chronic indigestion, with vague symptoms. Pre-op. diag.—1. Gallstones. 2. Duodenal ulcer. 3. Chronic appendicitis. 4. No pathology. Op. (E. A. C.)—A strictured appendix adherent throughout in pelvis. A very long Lane's kink. Pyloric region normal except for (congenital?) adhesion between pylorus and gall bladder. This was not disturbed. Pyloric sphincter was tight so that it was stretched by inversion. The sigmoid was so tightly adherent to rectum that it could not be freed without making a second incision.
E-d There was also a typical Jackson membrane constricting the ascending colon and evidently obstructing cecum to a certain extent. This was
P-d divided and rearranged. Comp.—Excessive post-operative vomiting—old blood on second day. Sepsis in abdominal fat without temp. (due
E-c to persistent vomiting?), phlebitis calf of leg; hiccough; distressing convalescence.
Result: Aug. 6, 1915—Looks well. Weight same. No material benefit from operation except much less vomiting. Still has acidity, constipation, and flatulence. Scar solid, but internal fibres of rectus are paralyzed. June 30, 1916—Not well. Has sensation of distention in left iliac fossa, and headaches. Proctoscopy advised. Oct. 14, 1916—Died. Death certificate: Septic endocarditis. Septic bronchitis, pleurisy with effusion.

O K 190. Mar. 22, 1914. Male—30. Grippe. 24-hour rest in bed.
Result: July 1, 1915—Well. Aug. 8, 1916—Well.

191. Mar. 24, 1914. Male—36. Calcified deposit in supra-spinatus tendon causing subacromial bursitis. Op. (E. A. C.)—Removal of deposit.
O K Comp.—None.
Result: Aug. 5, 1916—Letter—Well.

192. Apr. 5, 1914. Male—35. Chronic appendicitis and movable kidney.
O K Op. (G. W. M.)—Appendectomy. No op. on kidney. Comp.—None.
Result: Aug 19, 1915—Dr. M. reports, "Patient well."

193. Apr. 10, 1914. Female—39. Empyema of left antrum. Op. (Dr. D. C. Greene)—Resection of anterior end of left lower turbinate and re-
E-s section of part of naso-antral wall. Comp.—Septic absorption. Fever subsided on 5th day. Re-entry on June 25, 1914—Double femoral hernia and recent symptoms of acute appendicitis. Op. (E. A. C.)—Gibson

incision. A thick, partially obliterated appendix removed. Both herniæ, which were rather weak rings than true herniæ, were repaired from inside through same incision. Comp.—None.
Result: Aug. 24, 1915—Well. Scar solid. Left hernia bulges on coughing. Still has nasal symptoms and occasional free dripping of pus from antrum(?). Aug. 21, 1916—Exam.—Well. Condition same.

194. Apr. 10, 1914. Male—20. Septic pilonidal sinus ten inches long. Op. (E. A. C.)—Excision of sinus. Wound packed. Comp.—None. O K
Result: Apr. 9, 1916—Exam.—Well.

195. Apr. 14, 1914. Male—53. Pre-op. diag.—Duodenal ulcer with stenosis. Op. (E. A. C.)—Duodenal ulcer and also a large indurated ulcer of lesser curvature. Partial gastrectomy by E. A. C.'s method. Comp.—None. O K
Result: July 28, 1915—Well. Scar solid. For a long time after operation had a peculiar numb sensation in left leg, above and to outer side of knee. This has now almost disappeared. Somewhat careful of diet, but eats nearly everything. Aug. 14, 1916—Exam.—Well.

196. Apr. 16, 1914. Female—43. Fecal fistula following drainage of a pelvic abscess by another surgeon. Fistula reduced to a pinhole sinus under expectant treatment, but when patient went to work again it enlarged and became troublesome. The fistula was successfully excised by Dr. John Homans at Peter Bent Brigham Hosp., Sept. 17, 1914. (No. 3189.) E-j
Result: Aug. 24, 1916—Letter—Well.

197. Apr. 21, 1914. Female—32. Cystic lymphoma of neck. Op. (G. W. M.)—Incision and evacuation of clear fluid. Comp.—None. P-d
Result: Died at B. C. H., July 24, 1915. (No. 323,711.) Cancer of lungs.

198. Apr. 28, 1914. Male—42. Malunion of Colles fracture with great distortion. Also fracture of carpal scaphoid. Op. (E. A. C.)—Excision of lower fragment, refracture and partial correction of displacement. Comp.—None. There was a very decided improvement manifest two months after the operation. E-s
Result: Sept. 3, 1915—Wife writes, "I am sorry to tell you not a good hand; very crooked and stiff."

199. May 1, 1914. Female—19. Right inguinal hernia. Weak left ring. Op. (E. A. C.)—Ferguson operation on right. Tightening of left inguinal ring. Slight sepsis in fat on both sides. No temp. Both healed on 14th day. E-c
Result: July 24, 1915—Well. Scar O. K. Aug. 15, 1916—Seen recently by physician. Well.

200. May 4, 1914. Male—46. Pre-op. diag.—Acute appendicitis, also chronic diverticulitis of sigmoid (?). Op. (E. A. C.)—A strictured appendix, distended with pus, removed. Epiploicæ of sigmoid were adherent in pelvis and one shot-like body, probably in diverticulum, was felt. Comp. None. O K
Result: Aug. 19, 1915—Phys. reports that patient is well except for "catch in side when he raises his arms above his head." Dec. 31, 1915—Died of pneumonia.

201. May 18, 1914. Male—53. Bronchopneumonia. Comp.—None.
Result: July 20, 1915—Well, except slight chronic cough. No worse than before pneumonia. July 15, 1916—Well. O K

202. May 20, 1914. Male—28. Subsiding acute appendicitis. Op. (E. A. C.)—Appendectomy. Drainage. Comp.—None. O K
Result: Sept. 1, 1916—Letter—Well.

203. May 24, 1914. Female—33. Gallstones in gall bladder. Op. (E. A. C.)—Cholecystostomy. Comp.—None. O K
Result: Aug. 1, 1915—Well, but nervous. June, 1916—Has had no more symptoms of gallstones.

204. June 2, 1914. Male—48. Pre-op. diag.—Duodenal ulcer with grave doubts of cancer. Op. (E. A. C.)—Ulcerated cancer of pyloric end of stomach; partial gastrectomy by E. A. C.'s method. Comp.—None. Re-entry, July 17, 1915—Looks and feels much better than before
P-d previous op., but for last three months has lost weight and had some vomiting. Op. (E. A. C.)—Recurrence in liver and glands. Inop. Comp.—None.
Result: June 10, 1916—Physician reports that he is still alive; that he complains of adhesions and of pain around the wound. Dec. 19, 1916—Died.

205. June 2, 1914. Male—39. Acute subacromial bursitis from calcification in supraspinatus tendon. Op. (E. A. C.)—Incision of bursa and removal of deposit. Comp.—None.
O K *Result:* Aug. 2, 1915—Practically well. Some discomfort in extremes of motion. Aug. 2, 1916—"My shoulder presents practically a perfect End Result. I cannot throw anything without pain, but otherwise it is all right."

206. June 4, 1914. Male—21. Pre-op. diag.—Periostitis of ankle. Op. (G.
O K W. M.)—Incision and drainage of abscess (due to osteomyelitis?). Comp.—None.
Result: No report.

207. June 4, 1914. Male—31. Under care of G. W. M. Sacro-iliac strain.
O K Plaster support applied.
Result: No report.

208. June 5, 1914. Female—20. Pre-op. diag.—Lacerated cervix. Salpin-
O K gitis. Op. (G. W. M.)—Trachelorrhaphy. Uterus suspended by round ligaments. Strictured appendix removed. Comp.—None.
Result: No report.

209. June 8, 1914. Male—32. Traumatic paralysis and neuritis of ulna
O K nerve. Under care of G. W. M.
Result: Aug. 25, 1915—Patient writes Dr. M. that he has recovered.

210. June 9, 1914. Male—50. Multiple contusions from falling 35 feet.
O K Under care of G. W. M.
Result: Aug. 17, 1915—Well. (Letter.)

211. June 14, 1914. Female—44. Pre-op. diag.—Strictured appendix; possibly gallstones also; pelvic adhesions. Op. (E. A. C.)—Obliterated appendix removed. Marked Lane's kink present, but no plastic done.
O K There were also pelvic adhesions of omentum and a fibroid on the uterus the size of a horse chestnut. These pathologic conditions not removed because symptoms amply accounted for by condition of appendix. Comp.—None.
Result: Aug. 1, 1915—Letter to brother, a physician, "Well." Aug. 15, 1916—Letter to physician within a few months, "Well."

212. June 15, 1914. Male—58. Pre-op. diag.—Duodenal ulcer; possibly gallstones. Op. (E. A. C.)—"Tucked up" posterior duodenal ulcer. Posterior gastro-enterostomy. Gall bladder seemed normal, but at one time there was a suspicious feeling of elusive stones. Owing to patient's
O K condition, it was felt unwise to add to shock of operation by exploration. Comp.—None.
Result: Dec. 28, 1914—Went to work one month after operation and has worked steadily ever since. Eats and sleeps well, but complains of vague indigestion (due to gallstones?). Nov. 20, 1916—Physician reports, "Well."

213. June 17, 1914. Male—57. Double femoral incarcerated herniæ. Op. (E. A. C.)—E. A. C.'s method on left. Simple operation on right.
O K Comp.—None.
Result: Aug. 5, 1915—Well. Recently examined by phys. Aug. 17, 1916—Physician reports, "Well."

214. Male—24. Septic wound of foot with inguinal adenitis. Under care of G. W. M. No operation. O K
Result: No report.

215. June 27, 1914. Female—68. Pre-op. diag.—Duodenal ulcer with stenosis, possibly cancer of pyloric end of stomach. Op. (E. A. C.)—Duodenal and also gastric ulcer adherent to pancreas. Partial gastrectomy by E. A. C.'s method. A superficial layer of pancreatic tissue was removed with ulcer. Comp.—None. O K
Result: July 29, 1915—Well. May 24, 1916—Scar solid. Digestion good. Gain of 25 pounds. Bowels normal.

216. June 29, 1914. Male—38. Subacromial bursitis due to calcification in supraspinatus tendon. Op. (E. A. C.)—Removal of calcareous deposit. Comp.—None.
Result: July 27, 1915—Well. Aug. 2, 1916—"Shoulder seems to be absolutely well, and all its motions are normal." Oct. 25, 1916—Exam. —Shoulder which was operated upon has remained well, but has pain and discomfort in other (left) shoulder. Symptoms too mild to warrant operation. O K

217. July 7, 1914. Male—30. Abscess of buttocks. Op. (G. W. M.)—Incision and drainage. Comp.—None. O K
Result: No report.

218. July 21, 1914. Male—58. Adeno-carcinoma of ant. wall of rectum. Proctoscopy by E. A. C. Referred to Dr. D. F. Jones for operation. Operated on by Dr. J. at Deaconess Hospital by Dr. J.'s two-stage method. Comp.—Fecal leakage of perineal suture which healed in a few weeks.
Result: Aug. 2, 1915—Gained 30 pounds. Incontinence of feces requiring change of dressing 3 to 5 times daily. Physical strength good, but endurance poor. Aug. 7, 1916—Letter—"There has been no indication of a return of the malady that was the cause of the operation two years ago. There has not been much change, but some improvement. My weight remains 25 pounds above normal. The urinary system is nearly normal. There is no action to the generative organs. My strength has increased somewhat, and endurance considerably recently. My greatest inconvenience is the lack of action of the muscle of the anus, generally three changes of the back dressing a day is all that is required; but if my employment calls for much heavy lifting, it seems as though there was no muscle at all; usually a large proportion of fecal matter is voided naturally. It may be because of the changed condition, but it seems as though there was more gas than natural from the bowel." E-s

219. Sept. 16, 1914. Male—32. Recurrent attacks of abdominal pain and diarrhœa. Partial obstruction of sigmoid flexure demonstrated by X-ray. Op. (E. A. C.)—Obstruction was due to adhesion of sigmoid to its own mesentery. This was satisfactorily relieved by plastic operation. A strictured appendix was also removed through the same incision. Comp.—None. O K
Result: Aug. 2, 1915—Perfectly well until a week ago, when he had "one of the old attacks," which his doctor said was "colitis." Aug. 9, 1916—Father reports that he is better than he was.

220. Sept. 26, 1914. Male—19. Acute appendicitis. Op. (E. A. C.)—Appendix gangrenous with large concretion. Appendectomy and drainage. Comp.—None. O K
Result: Aug. 19, 1915—Exam.—A large bulging scar. Well. Nov. 28, 1916—Exam.—Well. Scar is so weak as to be practically a hernia. Radical cure advised.

221. Oct. 3, 1914. Female—57. Emergency case in poor condition. Pre-op. diag.—Cholecystitis with impaction of stone in cystic duct. Op. (E. A. C.)—Local anæsthesia. Many small stones removed from gall bladder. Cholecystostomy. Condition too poor to admit further exploration. Comp.—Persistent biliary fistula; phlebitis in large varicose veins of left leg. Re-entry Dec. 1, 1914—Biliary fistula; white stools; chills. Pre-op. diag.—Stone in cystic duct pressing on common duct. Op. (E. A. C. and Dr. W. W. Harvey)—A stone was found impacted firmly in ampulla (it seemed as if it would have been impossible for bile to pass this obstruction, yet bile had been present in the stools, and at times the fistula had closed, and there was only slight jaundice.) Transduodenal choledochostomy and removal of another large stone as well as that impacted. The common duct also contained pus and granular detritus and probably other small stones. Following Moynihan's principle, that when the largest stone has been removed by this method
P-d
it is unnecessary to try for other stones or institute drainage in the duct, the incision in the anterior duodenal wall was closed. The gall bladder was temporarily clamped to insure drainage of bile into the intestine until the duct was flushed out. (The clamp was removed on the 5th day.) Comp.—None. Convalescence was normal after the patient's return home until the spring of 1915, when ascites, œdema of the legs, and abdominal symptoms developed. She was taken in a critical condition to the Peter Bent Brigham Hosp. (No. 5247), and was operated on by Dr. John Homans, who was kind enough to ask the writer to see her. Exploratory operation showed no definite cause for symptoms, which were probably circulatory. The lower edge of the liver was adherent to the abdominal wound, and was buckled on itself, but this did not explain the symptoms.
Result: She died within 12 hours and no autopsy was obtained.

222. Oct. 6, 1914. Stout male—45. Acute intestinal obstruction from adhesions at old appendectomy scar (interval operation by Dr. F. B. Harrington in 1897 (?)). Op. (E. A. C.)—Novocaine and a few whiffs
O K
of ether. Division of multiple adhesions and freeing of an angulated obstruction of the small intestine. Comp.—None.
Result: July 26, 1916—Exam.—Well. Scar solid.

223. Oct. 9, 1914. Female—44. Chronic pain in right inguinal region and tenderness at McBurney's point. Hypertrophied cystic cervix. Pre-op. diag.—Chronic appendicitis and cyst of cervix uteri. Op. (E. A. C.)—Appendectomy (terminal obliteration of appendix). Ant. lip of cervix amputated. Comp.—None. Mar. 25, 1915—Re-entry for acute hemorrhagic cystitis of unknown origin (colon bacillus). There had been no previous symptoms of cystitis and no catheter or other instrument had ever been passed into the bladder. There was no pain, frequency, or the usual irritation of the bladder characteristic of cystitis. Dr. J. D. Barney in consultation catheterized ureters and obtained normal sterile
E-j
urine from both. The mucosa of the bladder showed small punctate hemorrhagic areas. Apparently this was a case of acute hæmatogenous infection of the bladder without involvement of the kidneys. At this time the posterior lip of the cervix was found to have greatly enlarged and to have become as cystic as the anterior lip had been. The operation on the cervix had therefore been of little value. The inguinal and abdominal symptoms had, however, been entirely relieved.
Result: Aug. 10, 1915—Well. Urine perfectly clear. Scar solid. Cervix smooth and less cystic. Oct. 23, 1915—Small epithelioma removed from forehead under local anæsthesia. Jan. 6, 1917—Well. Abdominal scar somewhat pigmented and keloidal, but strong. Few small cysts in cervix.

224. Oct. 17, 1914. Male—46. Repeated attacks of typical gallstone colic during last five years. Fever. Slight jaundice. Op. (E. A. C. and Dr.

A. W. Reggio)—Whole upper right quadrant was bound in a hard mass the size of an orange. This seemed inflammatory rather than malignant. Slow, blunt dissection into this mass led into an abscess containing thick pus. Further exploration resulted in tearing the hepatic flexure and developing a large, hard mass in the head of the pancreas, which was supposed to be malignant and apparently completely blocked the pylorus. The gall bladder and ducts were so welded into the mass as to be unrecognizable. The problem then presented was what to do in the face of: 1. The necessity of draining the abscess cavity. 2. The necessity of repairing or draining the torn hepatic flexure. 3. The necessity of relieving the obstructed biliary system. 4. The necessity of relieving the obstructed pylorus. My solution of the problem was effected in this way: The hepatic flexure was completely divided and a tube tied in the proximal end after closing the distal end. The abscess cavity was drained. A gastro-enterostomy was done. The gall bladder would also have been drained had the patient's condition permitted. The patient rallied from operation and everything went well until 10th day, when symptoms resembling lung embolism appeared. After being very near to death from lung complications, there seemed some hope of recovery, when on 21st day new abdominal symptoms appeared. On 23d day an exploratory operation showed the abdominal cavity to be full of bile, which had produced very little peritoneal reaction. Drainage was instituted because the patient's condition was too poor to admit of search for the site of perforation of the bile passages.
E-j
P-d
E-s
E-d
P-r
Result: At autopsy this proved to be in common duct just above mass felt at operation. This mass had greatly diminished in size and on section, instead of proving to be malignant, was found to be another retroperitoneal abscess adjacent to the head of the pancreas and due to a perforation of the common duct above a large stone in the ampulla. Further careful dissection demonstrated that the whole condition had been due to this retroperitoneal perforation of the common duct. This case, together with cases 173 and 230 and 232, illustrates that, as far as my surgical experience goes, it is often impossible to tell from the feeling of a mass in the head of the pancreas whether stone or malignant disease is present. The analysis of numerous cases must decide the question as to whether a conservative drainage of the bile or exploratory incision in the mass should be indicated in these cases. My own opinion is that more cases will be saved by incision into the mass in the hope of finding stone or pancreatitis.

225. Oct. 23, 1914. Female—43. Acute pelvic inflammation. (Neisser infection?) Symptoms characteristic of acute pelvic peritonitis. No operation. Douches and urotropin. Symptoms subsided satisfactorily. Further operation advised but not urged. O K
Result: Sept. 25, 1915—Well. No similar attacks. Sept. 11, 1916—Physician reports that she has been very well since she left the hospital.

226. Oct. 28, 1914. Female—41. Menorrhagia. Large fibroid of uterus. Op. (E. A. C.)—Hysterectomy and appendectomy (appendix was obliterated and adherent). Comp.—None. O K
Result: Aug. 21, 1916—Exam.—Well. Scar solid.

227. Nov. 3, 1914. Female—63. Under care of Dr. J. W. Seaver. Pain and stiffness in right knee. Hypertrophic arthritis. Massage and baking gave relief to symptoms. O K
Result: Aug. 13, 1915—"I received great benefit."

228. Nov. 8, 1914. Male—52. Subacromial bursitis. Calcification in supraspinatus tendon beneath the base of the subacromial bursa. Chronic pain for a year and very acute symptoms for the last 7 weeks. Op. O K

(E. A. C.)—Incision and removal of the calcareous mass. Comp.—None.

Result: Aug. 25, 1915—Still slight limitation of extreme motions and occasional twinges of pain, but letter expresses great satisfaction with the relief experienced. Sept. 13, 1916—Letter—Well. Trifling limitation of motion.

229. Nov. 13, 1914. Male—44. Elephantiasis nostras of both legs. Op. (E. A. C.)—Kondoleon operation on both sides of right calf. Comp.—None. The left leg was not operated on but was much reduced by rest in bed. The calf of one operated on was reduced from 26 in. to 15 in.

Result: Aug. 5, 1915—The gain made has been retained by the use of laced canvas stockings covered by elastic stockings. Works constantly on feet. Right calf, 15 in. Left calf, 15½ in. Gain on left almost as much as on right. This case was seen before operation by many of the members of the Clinical Surgical Association. I am indebted to Dr.

O K Matas for the suggestion of the Kondoleon operation. Aug. 14, 1916—Letter—"I have been able to work every day since I started, a year ago last February. My legs measure round the calves: the right, 14⅞ in. —the one that was operated on; and the left, 15 in. You will see that they are smaller than when I left the hospital. I continue to wear the Corliss stockings and the rubber over them. I think this the best combination possible. My general health seems to be very good. My weight is reduced, so that I feel more active, and my flesh is now healthy, and not of the water look that I had before the operation. I continue to sleep with my feet elevated the same as when I was in the hospital, and I cannot rest well in any other position, I am so used to it."

230. Nov. 27, 1914. Male—59. Under the charge of Dr. H. F. Vickery. Diabetes mellitus and suspected cancer of pancreas. Deep, obstructive jaundice; intense itching; loss of weight and appetite for 1 year. Treated by dietetic measures which resulted in great diminution of sugar. Re-entry Dec. 25, 1914. Op. (E. A. C.)—Under diagnosis (1) of cancer of duodenal papilla, (2) cancer of head of pancreas, or (3) stone in ampulla. The gall bladder was found to be distended and the common duct obstructed by a hard tumor in the head of the pancreas about the size of a horse chestnut. As it was impossible to rule out stone by feeling alone, an incision was made into the duodenum and an effort made to probe the duct. As this was unsuccessful, an incision was made directly into the tumor through the posterior wall of the duodenum. Evidently the pancreatico-duodenalis artery was cut,

P-d for a severe hemorrhage occurred which could only be controlled by packing. As it was obviously impossible to leave the packing *in situ,*

E-j it was felt that the only hope of success lay in the radical operation of removing the entire head of the pancreas, for if the diabetes were

E-d? due to the obstruction in this organ, there might be a chance of recovery after its removal. Accordingly the second portion of the duodenum and head of the pancreas were removed *en masse.* The distal end of duodenum was sewed over the stump of tail of pancreas in the manner recommended by Coffey. The proximal end was anastomosed to a coil of jejunum and a cholecystenterostomy also made with the same coil. The abdominal wound was closed except for a small drain. After the operation he had no vomiting, distention, abdominal pain, or other untoward symptom, except on the 2d day coma of gradually increasing intensity.

Result: Death on the 5th day. After death I examined the wound and found it clean and sound—even the cut end of the pancreas having no slough or pus. Both anastomoses of the intestine were healing nicely. There was no dilatation of the stomach, and the anastomosis made by the button was in good condition. During the five days after operation less than ten ounces of urine were passed. This case shows that excision

of the head of the pancreas is anatomically and surgically possible. In other words, this case has taught me that, given a small cancer of the head of the pancreas in a patient without diabetes, it would be justifiable to deliberately plan to remove the disease. Path. report of the specimen by Dr. J. H. Wright shows diffuse chronic pancreatitis with almost complete destruction of the pancreatic tissue. Ingrafted on this was a carcinoma.

231. Dec. 27, 1914. Female—53. Abdominal tumor size 6 months fœtus. Ascites. Pre-op. diag.—Ruptured papillomatous ovarian cyst. Op. (E. A. C. and A. W. Reggio)—General papillomatous implantations scattered over whole peritoneum. A mass still recognizable as a ruptured cyst was with difficulty removed, leaving a raw surface of evident malignant tissue. A cigarette drain was carried to this point and the wound closed. Comp.—None, but at the time of discharge, three weeks after operation, palpable masses were evident. P-d P-r
Result: Died at her home, Feb. 21, 1915.

232. Jan. 5, 1915. Male—38. Painless jaundice of two years' duration. Ascites, œdema of the legs, etc. No stomach symptoms. Pre-op. diag. —Obstructive jaundice from (1) ulcer at papilla, (2) chronic pancreatitis, (3) stone in the common duct. Op. (E. A. C. and Dr. W. W. Harvey)—About two quarts of bile-stained ascitic fluid evacuated. Gall bladder was found to be greatly dilated and a small hard tumor was present in the head of the pancreas. A nodule the size of a pea was noticed in the edge of the left lobe of the liver and was supposed to be a cyst. It was impossible for me to tell the nature of the tumor except by incision, as in case 230. It seemed probably inflammatory, either due to chronic pancreatitis or a posterior duodenal ulcer. Therefore it seemed as if the patient had a chance of relief from simple drainage of the gall bladder, since this has been shown to be of value in chronic pancreatitis. This was accordingly done, with the intention of doing a secondary radical operation if the jaundice disappeared and the sinus did not close. Comp.—None, except blood clot in wound without temperature or pain. Re-entry, Apr. 11, 1915. Sinus had not closed. Ascites had returned. General condition was worse. Op. (E. A. C. and Dr. W. W. Harvey)—The small nodule in the liver had grown to the size of a horse chestnut. Other nodules had appeared and the pancreatic tumor had greatly increased in size. Nothing could be done. Comp.—None. Returned to his home in N. S. on the 5th day after the operation. E-d E-j E-c
Result: Died May 3, 1915.

233. Jan. 16, 1915. Female—46. Congenital malformation of spine resulting in wry neck, cervical rib, lumbo-sacral strain, lumbo-sacral anomalies, and nerve root pains in cervical and sciatic plexuses. Had previously had appendix removed and ventral fixation by another surgeon. No treatment was given this patient, but the searching examination resulting in a definite diagnosis will enable her hereafter to modify her life to the conditions nature has imposed upon her, instead of spending time and money in a futile search for a cure. Her symptoms can be relieved, but the cause of the symptoms will be permanent and must be allowed for. O K
Result: Aug. 17, 1915—Letter—Better. Happier. Aug. 18, 1916—Letter—Much improved.

234. Jan. 19, 1915. Female—41. A large and stout patient, with nervous and abdominal symptoms associated with the menstrual period. Retroversion of uterus. Op. (E. A. C.)—Ventral fixation. Removal of a stenosed kinked appendix containing a concretion. Very movable cecum and an hourglass gall bladder were also noted, but were not E-c

altered. Comp.—None, except a tiny spot where skin apposition was defective.
Result: Sept. 2, 1915—Exam.—Scar solid. Uterus in good position. A most satisfactory result in the relief of menstrual symptoms. Still complains of some indigestion. July 4, 1916—Physician writes, "I think she was much benefited by your treatment."

235. Jan. 27, 1915. Female—33. Chronic pain and soreness in pelvis and right iliac fossa, following operation eight years ago by another surgeon. Pre-op. diag.—Adhesions of cecum to abdominal scar. Op. (E. A. C. and R. F. Sheldon)—Old scar removed and multiple adhesions of small intestine separated and raw surfaces covered by peritoneal plastics. The appendix, which was also involved in the adhesions, was removed. There were many other adhesions which could not be removed, but the whole abdominal condition was apparently greatly improved. Comp.—None, except small spot at angle of wound pulled apart by adherent gauze.
E-c
Result: Aug. 19, 1915—Looks perfectly well. Scar solid. Still complains of similar symptoms. Aug. 21, 1916—Exam.—Well. Scar solid. Minor complaints.

236. Jan. 27, 1915. Female—32. Left-sided abdominal pain for 2 weeks and for several years pain of some kind. Pelvic lacerations. Left-sided abdominal tumor. Pre-op. diag.—Partial volvulus of left tube, with pressure on left ureter. Op. (E. A. C. and A. W. Reggio)—Tumor proved to be an encapsulated extra-uterine pregnancy limited by an adherent sigmoid flexure. Left tube and ovary with clot and fœtus removed. Drainage of oozing cavity. Comp.—None.
E-d
Result: Aug. 23, 1915—Looks very well. Slight complaint of leucorrhœa and pelvic discomfort. Not exam. Aug. 6, 1916—Well. Occasional "pain in side."

237. Feb. 3, 1914. Female—45. Acute abdominal pain and pelvic tumor size child's head. Three months previously a rectal hemorrhage. Pre-op. diag.—Ovarian cyst with twisted pedicle. Op. (E. A. C. and A. W. Reggio)—Tumor proved to be ovarian and was cystic because necrotic in the center. After its removal the rectum was examined to find any possible cause for the previous hemorrhage. At the rectosigmoidal junction was apparently a tight stricture evidently malignant. Above this in the sigmoid was a pedunculated intra-intestinal tumor the size of a horse chestnut, as well as several smaller masses. The right ovary was also enlarged to the size of a small lemon. There were at least two metatases in the liver. Since the patient's strength was fairly good and she had shown little cachexia in spite of the extensive character of the disease, we decided to excise the upper part of the rectum and sigmoid instead of making an artificial anus. End to end anastomosis was completed with a Harrington ring. The handle of this instrument made possible an otherwise very difficult suture in the depths of the pelvis. Drainage of the superficial portion of wound. Comp.—None. The specimens were examined by Dr. Mallory, who reported that the primary condition was benign adenomata of the mucosa of the sigmoid. One tumor had become malignant, ulcerated, and formed metastases in the liver and ovary. On June 17, 1915, the patient, who had been comfortable until within a few weeks, re-entered with similar symptoms, especially abdominal distention and a tumor on the right side of the abdomen. At this time there was profound cachexia and severe pain. In spite of the palpable liver metastases, it seemed best to try to remove the (probably) ovarian tumor which was pressing on the rectum. Op. June 18 (E. A. C. and A. R. Barrow)—A tumor similar to the previous one was removed with difficulty, as it was densely adherent to the pelvic and abdominal organs. It was necrotic and friable
E-d
P-d

and much of it was scooped out. Small parts of it were unavoidably left in the ragged wound. Other small metastases were present in the omentum and fat. A drain was left in the bleeding cavity, and the abdominal wall closed. In spite of her cachectic condition, the convalescence was comfortable except for the parting of the skin incision from distention. Pain was relieved and she was able to get up. July 30, 1915—Relieved of pain, but weak. Still able to sit up.
Result: Died at home, Aug. 29, 1915.

238. Feb. 8, 1915. Male—26. Subcoracoid dislocation of right shoulder, which had been recently reduced by another surgeon and had again recurred. It was easily reduced without ether. **O K**
Result: July 2, 1915—Letter—Recurrence took place again within a few weeks, but was easily reduced again by local physician.

239. Feb. 13, 1915. Male—52. Subacromial bursitis due to calcification in supraspinatus tendon. Op. (E. A. C. and R. F. Sheldon)—Incision of bursa and removal of calcareous mass. Comp.—None.
Result: Aug. 26, 1915—Phys. reports, "Good result, but patient still has slight limitations in extreme motions." Aug. 16, 1916—Letter—"I have not been bothered much with my shoulder. The only difficulty is in getting on my coat, but I find a great improvement in that within a month. I did the exercising that you suggested up to a few weeks ago, when I discontinued and substituted using the arm in swimming and playing ball. I find that has helped me considerably. My general health is good." **O K**

240. Feb. 15, 1915. Male—10. Acute appendicitis (17 hours). Op. (E. A. C. and A. N. Reggio)—Appendectomy and removal of small portion of omentum which was wrapped about an inflamed appendix containing a large concretion. Comp.—None. **O K**
Result: Oct. 16, 1916—Exam.—Well. Scar normal.

241. Feb. 16, 1915. Male—52. Pain in right inguinal region. This patient had been previously operated on for the same symptoms by the following distinguished surgeons: Dr. S. J. Mixter, Dr. J. G. Mumford, Dr. H. O. Marcy, Dr. M. H. Richardson, Dr. C. A. Porter. The patient was wearing a truss, although no hernia existed. It seemed to me that a nerve bulb in the scar was probably the cause of his pain. Under novocaine careful dissection of the dense scar tissue revealed a nerve bulb which seemed likely to be the cause of the symptoms. Comp.—None, except hæmatoma in the wound, which healed without suppuration. **E-s** **E-c** **P-d**
Result: July 1, 1915—Recently this patient has reported that the pain is as bad as before. No hernia is demonstrable. Aug. 12, 1916—Letter—"I am feeling fairly well, but at times the pain from the cut nerve is almost unbearable. As a result, I am unable to tackle anything requiring strength."

242. Feb. 24, 1915. Female—33. Very large abdominal tumor. Pre-op. diag. by E. A. C.—Ovarian cyst. By Dr. Koch—Fibroid of uterus. Op. (E. A. C. and Dr. F. L. Koch)—Hysterectomy and appendectomy. Appendix adherent but not strictured. Comp.—None. **E-d**
Result: Sept. 1, 1916—Physician reports, "Patient well."

243. Mar. 1, 1915. Female—7. Subacute abdominal pain for 10 days. "Cake" in right iliac region for 24 hours. Local tenderness. Temp. 101. Pre-op. diag.—Acute appendicitis. Op. (E. A. C. and A. W. Reggio)—"Cake" proved to be a mass of tuberculous mesenteric glands. Evidently due to a localized tuberculous area in ileum near valve, about 1½ by 1 in. in length. This area was indurated and felt as if ulcerated on inner side. Appendix was normal—not removed for fear that the trauma might stir up the tuberculosis. Comp.—None. **E-d**

Result: Aug. 16, 1915—Exam.—Well. One small movable gland palpable at site of former "cake." Aug. 1, 1916—Father reports to physician that patient is well.

244. Mar. 14, 1915. Female—28. Tender tumor to right of spine at junction of 12th rib. Pre-op. diag.—Angioma? dermoid cyst? lipoma? fibroma? sarcoma? wen? cold abscess? Op. (E. A. C.)—Tumor proved to be a small cold abscess between the fascia and muscle of the
E-d erector spinæ. It was removed entire. On section found to contain thick pus with a few spicules of bone. (Pure staph. aureous.) Wound
E-c closed tight. Comp.—None, except collection of serum which was evacuated on a director several times.
Result: Aug. 10, 1915—Letter—At times her back troubles her, and the wound is tender, burns, twinges, and aches. Aug. 8, 1916—Letter—Well.

245. Mar. 29, 1915. Male—47. Irregular ulcerated perineal scar following dissection of a very extensive tuberculous fistula with sinuses in ischiorectal fossa and buttocks, in Aug., 1914, by E. A. C. Op. (E. A. C.
O K and R. F. Sheldon)—Excision of sinus and division of sphincter. Comp. —None.
Result: July 26, 1915—Well. Slight cough. July 31, 1916—Well. Scar normal. Recent examination of the lungs by Dr. John B. Hawes negative.

246. Apr. 5, 1915. Male—12. Pneumonia 3 weeks ago. Classical signs of empyema. Op. (E. A. C.)—Portion of 10th rib excised, drainage by E. A. C.'s modification of A. T. Cabot's method, no air being allowed to
O K enter thorax. Comp.—None. Healed in 3 weeks, except for small spot of granulation.
Result: Aug. 19, 1916—Physician writes: "In perfect health. He does not cough, has no deformity, and operative scar is very slight. There is some evidence of slight pleural thickening."

247. Apr. 15, 1915. Male—48? Violent left-sided abdominal pain for 24 hours. Pyrexia, vomiting, prostration, leucocytosis. Neg. X-ray. Patient was kept for 5 days under observation under the diagnosis of hæmatogenous infection of the kidney. As his condition grew worse it was felt that perinephritic abscess was present. Op. (E. A. C. and A. W. Reggio)—Kidney was found adherent to fatty capsule, but showed no abscesses on its surface. It was large and congested looking, and it did not seem sufficiently pathologic to account for the pain, so the peritoneal cavity was explored with negative results. Gall bladder felt normal. Nothing satisfactory seemed to have been accomplished, but on recovering from ether the patient alleged that he was
E-d relieved of the pain from which he had previously suffered! Comp.—None, except on the 5th and 6th days many normal and abnormal blood corpuscles appeared in the urine. Was the relief caused by this operation due to the dislodgment of a minute stone or by separation of the perirenal adhesions?
Result: Aug. 12, 1916—Physician writes: "Has steadily gained in weight and is feeling well and strong, except that he has dizzy spells lasting for a short time, a few minutes, two or three times a week. His appetite is good and he has no pain in the region of the operation. Urine is normal. Thinks he is getting too stout now, and is trying to keep in good condition by plenty of walking. No similar attack since operation."

248. Apr. 16, 1915. Female—23. Entered with the characteristic symptoms of pelvic peritonitis from acute tubal infection. Vaginal exam. showed
E-c a large mass in the posterior cul-de-sac considered to be a tube distended with pus. Patient was kept under observation for 12 days, when all symptoms had disappeared except a slight induration of the post.

cul-de-sac. Op. (E. A. C. and R. H. Miller)—Both tubes slightly swollen and reddened. Left, which was adherent with recent fibrin, was removed. Appendix containing concretions was removed. Comp.—None, except slight serous discharge from wound for 2 days. Path. exam. showed that the tube was normal, with exudate on the outside.
Result: Aug. 2, 1916—Letter—Well.

249. Apr. 16, 1915. Male—75. Acute distention of the gall bladder. Cholelithiasis and cholecystitis. Op. (E. A. C.)—Cholecystostomy. One large gallstone removed. Comp.—None. **O K**
Result: Aug. 2, 1916—Physician reports that patient is suffering from furunculosis, but generally is well and strong as ever, and able to do his full day's work.

250. Apr. 17, 1915. Female—35. Periodic attacks of abdominal pain and vomiting. Chronic tonsillitis. Fissura ani. Small hemorrhoids. Neurasthenia (?). Cystic cervix. Two previous abdominal operations. Op. (E. A. C.)—Sphincter stretched and hemorrhoids cauterized. Comp.—None. May 13, 1915—Both tonsils removed by Dr. J. L. Goodale. Re-entry July 18, 1915—Same symptoms. Op. (E. A. C. and A. R. B.)—Adhesions at old scar separated. A band representing old suspension operation was removed. The sigmoid had evidently been getting caught about this band, for two appendices epiploicæ had twisted together, and one had become gangrenous. Uterus again suspended by shortening round ligaments. Re-entry Jan. 16, 1916—Attack vomiting, etc., which soon subsided. Re-entry June 13, 1916—Attack vomiting and diarrhœa. Soon subsided. **E-s**
Result: Aug. 2, 1916—Letter—"I am feeling generally better and much stronger, and do not tire as easily." Still has various minor complaints. Apr. 4, 1917—Attack of bacteriuria. Cystoscopy negative. Urine cleared up under urotropin.

251. Apr. 18, 1915. Female—34. Tumor at left angle of jaw size of horse-chestnut. Pre-op. diag.—Tuberculous gland. Op. (E. A. C. and A. W. Reggio)—Tumor proved to be an enchondroma of parotid. Excised. Comp.—None. **E-d**
Result: Aug. 14, 1916—Exam.—No symptoms. Scar is hardly noticeable.

252. Apr. 19, 1915. Male—58. Persistent ulceration and tumor post. portion of left lower jaw. Two operations had previously been done by another surgeon. Pre-op. diag. from excised specimen—Adamantinoma. Op. (E. A. C. and Dr. M. L. S. Miner)—Excision of posterior half of left lower jaw. As tumor extended beyond upper jaw this operation had to be very radical. There was excessive hemorrhage, controlled by packing. Comp.—Pulmonary embolism, phlebitis. Long convalescence. Healed in 7½ weeks. **E-s?**
Result: July, 1915—Well. An excellent cosmetic result. Can open mouth and appose teeth. Feb. 8, 1917—Physician reports, "Well."

253. Apr. 29, 1915. Female—33. Uretero-vaginal fistula following hysterectomy for cancer by another surgeon 1 year previously. Albuminuria. Pyuria. By the red test the urine from the vaginal fistula, left ureter, was found to be ¼%, and on the right to be 40%. Consultation with Dr. J. D. Barney. Op. (E. A. C. and J. D. B.)—The left kidney and dilated left ureter removed to vaginal scar; specimen showed that kidney substance had practically disappeared. Pelvis and ureter full of foul pus. Comp.—None. This case is a good illustration of the observation of E. A. C. (*Boston Med. and Surg. Journ.*, Aug. 5, 1909) that stricture of the distal end of the ureter produces dilatation of the ureter instead of the renal pelvis. It is also illustrative of the principles laid down by Dr. Barney in his research on the results of ligation **P-d**

of the ureter (*Surgery, Gynecology, and Obstetrics,* Sept., 1912, pp. 290–295).
Result: Aug. 1, 1915—Letter—"Almost well. Some pain in back." Aug. 16, 1916—Exam.—Well. Scar solid. Urine clear. Referred to Peter Bent Brigham Hospital for epileptiform seizures which she has had occasionally for some years.

254. May 3, 1915. Male—23. Several previous attacks of typical appendicial symptoms, the last 2 weeks before entrance, when he had been under
O K observation of competent physician. Op. (E. A. C. and R. F. Sheldon) Novocaine anæsthesia. Appendectomy. Appendix showed no indication of recent or old inflammation. Comp.—None.
Result: Aug. 2, 1916—Exam.—Scar solid. No abdominal symptoms. Well.

255. May 4, 1915. Female—64. Chronic dyspepsia of many years' standing. Recently loss of weight and appetite. Gastric retention of over 48 hours demonstrated by X-ray. Attacks of diarrhœa. Prolapse of
E-c uterus. Condition feeble. Op. (E. A. C. and G. W. M.)—There was a small, hard, irregular mass at the pylorus. It seemed more like ulcer
E-s than cancer. Post. gastroenterostomy. Comp.—Vomited small amounts of blood in first 24 hours. Liquid blood clot twice evacuated from wound. No suppuration.
Result: Nov. 28, 1916—Exam.—Well. Has gained too much weight. No digestive symptoms. A small, symptomless hernia in middle of scar. Recently fractured greater tuberosity of left humerus.

256. May 8, 1915. Female—25. Two previous attacks of appendicial symptoms; pain and tenderness for 48 hours. Pre-op. diag.—1. Chronic salpingitis. 2. Subacute appendicitis. Op. (E. A. C. and R. H. Miller) —Appendectomy. Term. half of appendix was obliterated and prox.
E-d half was distended with turbid fluid. Tubes and ovaries normal. A small fibroid in uterus was not disturbed. Comp.—None.
Result: July 30, 1915—Well. Flat foot. Hallux valgus. Aug. 22, 1916 —Exam.—Scar deeply pigmented. Has recently been through a normal confinement. Well. Small fibroid in uterus not palpable.

257. May 13, 1915. Female—40. Tumor of upper half of humerus size of grape fruit. Pre-op. diag.—Osteochondroma. Op. (E. A. C. and T. W. Harmer)—Growth was removed piecemeal until all the important nerves and other structures imbedded in it were isolated. About 4 in. of the bone from which it sprang was removed, leaving the articular head. Crumbs of tumor were unavoidably entangled in the large wound. Plastic repair of muscles. Comp.—None. Diagnosis confirmed by path. report by Dr. Mallory. Not malignant. At time of discharge this patient could move all the muscles and there was no sign of motor
O K or sensory nerve injury.
Result: Aug. 27, 1915—Exam.—In good health. No sign of recurrence. Good use of hand. Strong pull but no abduction. Can use fork. Can do hair by stooping. Sept. 15, 1916—Re-entry. Several small local recurrences not interfering with function—removed. Nov. 13, 1916— Re-entry. Remaining bone of upper end of humerus excised with growth about size of fist. Upper end of lower fragment also excised. Comp.—Slight parting of skin edge for half an inch. Two weeks after operation able to use hand and forearm. No sign of malignancy. Mar. 31, 1917—Letter saying she is able to use arm pretty well, but not as well as before the last operation.

258. May 18, 1915. Male—59. Progressive loss of weight for 3 months. Recurrent attacks of abdominal cramps. Abdominal distention and
P-d visible peristalsis. Severe pain. Pre-op. diag.—Acute intestinal obstruction from cancer of recto-sigmoidal junction. Op. (E. A. C. and

G. W. M.)—Besides many small metastases there were two large masses of cancer, one at the ileo-cecal region and one at the recto-sigmoidal junction. It could not be determined which was primary, but the acute obstruction was evidently caused by the ileo-cecal tumor, for coils of small intestine were enormously distended. These coils were very satisfactorily evacuated on a Monks' tube and a lateral anastomosis made between the transverse colon and the ileum at the point incised for the Monks' tube. Wound closed without drainage. Comp.—None.
Result: July 29, 1915—Letter—Slight gain in strength. Able to attend to business part of the week. Died of same disease Nov. 10, 1915.

259. May 27, 1915. Female—54. Intermittent periods of disability owing to locking of left knee and consequent synovitis. X-ray showed peculiar round bodies under supra-patella tendon. Op. (E. A. C. and A. R. Barrow)—Removal of mass of fatty synovial tissue on which calcified beads were hung by short pedicles—evidently calcified lipoma arborescens. Comp.—None. About 30° of motion and some effusion at time of discharge, 3 weeks after operation. Could walk with slight limp. O K
Result: Aug. 14, 1915—Still somewhat stiff and has some difficulty in walking downstairs. May 22, 1916—Husband reports, "Well."

260. June 1, 1915. Female—31. Under the care of Dr. W. P. Graves. Dysmenorrhœa. Op. (W. P. G.)—Dilatation and curettage. Comp.—None. O K
Result: Aug. 15, 1915—"Only fairly satisfactory so far."

261. June 2, 1915. Male—63. Cancer of lip. Op. (E. A. C. and A. R. B.)—V-shaped resection under novocaine. Comp.—None. Re-entry June 21, 1915, on account of palpable glands in submental region. Under novocaine these were removed with the adjacent tissue, but on microscopic section showed no cancer cells. Comp.—Collection of sero-sanguinous fluid in wound. E-c
Result: July 25, 1916—Well.

262. June 14, 1915. Female—55. Deformed great toenail. Op. novocaine (E. A. C. and A. R. B.)—Excision of matrix and a portion of phalanx. Comp.—None.
Result: Feb. 19, 1916—Re-entered for cardiac condition following an attack of grippe. Blood pressure 200. Dr. George C. Shattuck in consultation. Diagnosis of arterio-sclerosis. Toe O. K. Scar rough and hard. O K

263. June 14, 1915. Female—76. Fracture of external malleolus without displacement. Comp.—None. O K
Result: Aug. 9, 1916—Letter—"I have never really had any bad effects from my broken leg."

264. June 20, 1915. Female—59. Diabetes mellitus. Diabetic neuritis. Threatening gangrene of foot. Under the charge of Dr. John W. Dewis. Anti-diabetic diet. Symptoms subsided to a great extent.
Result: May 25, 1916—Re-entered. Ingrowing toenail which threatens to cause ulceration of toe. Conservative treatment successful without operation. Developed herpes zoster while in hospital. Aug. 2, 1916—Letter—"No more trouble with the toenail. The toe and a portion of the foot are still troublesome." O K

265. June 22, 1915. Female—48. Pain in distribution of right ant. crural nerve. Uterine fibroids pressing on lumbar plexus. Op. (E. A. C. and A. R. B.)—Hysterectomy. Comp.—Serous discharge from wound, which healed promptly. E-c
Result: Dec. 13, 1916—Still complains of pain in back of neck and undue fatigue after exertion. Exam.—Scar O. K. Cervix in good position. Has gained 20 lbs., but even now weighs only 110.

266. June 22, 1915. Female—44. Profuse menorrhagia. Large uterine fibroid. Op. (E. A. C. and A. R. B.)—Hysterectomy. Appendectomy.
E-c? Comp.—Phlebitis of leg delaying convalescence 3 weeks.
Result: Oct. 28, 1916—Some swelling of left leg and much complaint of the tired feeling in it. Exam.—In good health. Scar O. K. Leg scarcely swollen.

267. June 28, 1915. Male—46. Cancer of lip. Op. (E. A. C. and A. R. B.)
O K Local anæsthesia—V-shaped excision. Comp.—None.
Result: Aug. 10, 1916—Exam.—Well.

268. June 28, 1915. Male—77. Starvation from impassable cancer of œsophagus. B. C. H. (No. 321939 and No. 326916). His phys. instructed to
P-d feed patient through hollow bougies constructed after the method of S. J. Mixter. Great relief.
Result: Aug. 10, 1915—Strength failing, but able to keep up nourishment. Died Oct. 2, 1915, at B. C. H.

269. July 20, 1915. Female—58. Intestinal obstruction from cancer of the
E-j? rectum. Op. (E. A. C. and A. R. B.)—Large inoperable mass at recto-sigmoidal junction. Numerous metastases in liver. Artificial anus made
P-d in left loin. Distal end closed and dropped back.
Result: Aug. 30, 1915—Has returned home, but strength is rapidly failing. Died of the same disease Jan. 18, 1916.

270. July 22, 1915. Female—62. An abdominal tumor larger than full-term uterus. Pre-op. diag.—Ruptured papillomatous cyst of ovary. Op. (E. A. C. and A. R. B.)—Large multilocular cyst. It had been ruptured to some extent, and the jelly-like contents had spread about abdominal
O K cavity and in places had become encysted again. The tumor was removed and was found to consist of numberless spaces filled with colloid material, but there were no papillomata—only thin walls. Nevertheless, on section Dr. J. H. Wright considered the specimen colloid cancer. Comp.—None.
Result: Sept. 27, 1916—Well. Scar solid.

271. Aug. 6, 1915. Female—41. Abdominal pain for 24 hours. Pre-op. diag.
O K —Acute appendicitis. Op. (E. A. C. and A. R. B.)—Gangrenous appendix removed and retrocecal abscess drained. Comp.—None.
Result: Aug. 19, 1916—Exam.—Well. Scar solid.

272. Aug. 12, 1915. Female—31. Attacks of biliary colic for last 18 months. Pre-op. diag.—Gallstones. Op. (E. A. C. and A. R. B.)—Novocaine. In lower portion of right lobe of liver hard tumor, size of lemon, which seemed adherent to gall bladder. No stone felt. Closed tight. Operative diag.—Gumma of liver. Comp.—During convalescence, pain in
E-d feet and legs without swelling or phlebitis. Cause unknown—perhaps spinal. Active specific treatment.
Result: Aug. 2, 1916—Physician reports that patient has never enjoyed such good health. Weight 153 pounds, as compared with 108 pounds a year ago. Pain in region of gall bladder has gradually grown less severe, the intervals increase; no attack of pain for three months.

273. Aug. 14, 1915. Male—39. Suppurating wen, size of horse-chestnut, on
O K outer side left thigh. Op. (E. A. C. and A. R. B.)—Novocaine. Tumor excised and defect closed by skin flap. Comp.—None.
Result: Aug. 8, 1916—Well. Scar red, but not troublesome.

274. Aug. 24, 1915. Female—41. Large fibroid of the uterus causing severe menorrhagia and complicated by chronic nephritis. Op. (E. A. C. and A. R. B.)—Supravaginal hysterectomy. Large, thickened appendix
E-c removed. Comp.—Slight bronchitis. Serous discharge from wound; healed in 2 weeks. Angio-neurotic edema of hands and feet. Albuminuria disappeared.
Result: Aug. 2, 1916—Letter—"My health is good."

275. Aug. 27, 1915. Female—41. Retrocecal appendix abscess of 2 weeks' duration. Patient had previously refused operation. Op. (E. A. C. and A. R. B.)—Abscess drained, but appendix could not be found in abscess wall. Comp.—Appendicial fistula. Cystitis. Aug. 18, 1916—Hernia in scar. Still has a very small appendiceal sinus which gives her a great deal of worry. Appendectomy advised. Oct. 29, 1916—Re-entered. Op. (E. A. C. and W. P. Coues)—Excision of appendix, which had been drawn to the surface by a fistula and appeared almost normal. Ovarian cyst, size of horse-chestnut, excised and ovary sutured. Uterus showed small fibroids, but hysterectomy not considered necessary. Bad hemorrhoids treated with clamp and cautery. Comp.—Exacerbation of chronic cystitis. **P-r** **E-s**

276. Aug. 31, 1915. Male—29. Two typical appendicial attacks previously. Op. (E. A. C. and A. R. B.)—Local anæsthesia. Strictured, adherent appendix removed. Comp.—Hematoma in wound, but no delay in convalescence. **E-c**
Result: Aug. 7, 1916—Well. Scar solid, slightly keloidal.

277. Sept. 7, 1915. Female. This patient was in severe shock with a barely perceptible pulse. She had had acute abdominal symptoms for 20 hours; onset sudden. Feeling that the diagnosis was uncertain but that her critical condition rendered a *rapid* exploratory operation imperative, I called Dr. D. F. Jones. His diagnosis was: (1) Perf. appendicitis. (2) Perf. stomach or duodenum. (3) Extrauterine pregnancy. Op. (Drs. D. F. J. and J. M. G.)—Typical ruptured tubal pregnancy was found, and the left tube and ovary excised. Immediately after the operation, Dr. Beth Vincent performed indirect transfusion from the patient's sister. Patient rallied well, and had a comfortable convalescence. Comp.—None. **O K**
Result: Aug. 19, 1916—Physician reports, "Well."

278. Sept. 8, 1915. Female—42. Multiple tumors in both breasts. Pre-op. diag.—Double chronic cystic mastitis. Op. (E. A. C.)—Amputation of both breasts. One tumor proved to be a small fibroma, the rest were cystic. Comp.—Slight bronchitis. Wound O. K. **E-d**
Result: June 13, 1916—Well.

279. Sept. 13, 1915. Female—27. Perineal lacerations following confinement several months previously. I have never seen such an extreme case. The rents extended on each side practically to the cervix, and backward into the rectum, causing incontinence of feces. An attempt had been made by the attending physician to sew up with silk. The scars were still ulcerated, and bits of silk protruded here and there. Op. (E. A. C. and A. R. B.)—The entire scar tissue on both sides was dissected out, and a plastic operation done which repaired the sphincter, vagina, and perineum. This operation was very extensive, and the hemorrhage was considerable. Owing to these conditions, as well as to the previous anemia and chronic sepsis, Dr. Beth Vincent was called in consultation to consider the question of transfusion. This operation was done, not only on account of the present condition, but with the hope of aiding in the healing of the very extensive wound. No test for hemolysis was done. The donor was the patient's husband. During the transfusion a little air entered the vein, but no immediate symptoms occurred. A little later, however, the patient had a severe chill and seemed dangerously near complete collapse. For some time there was methemoglobinuria. We felt much anxiety as to her condition, but she eventually made a good recovery. Comp.—Slight delay in healing of a portion of the vaginal wound. Dr. Vincent found that the donor's blood belonged to Group 2 and the recipient's to Group 4. This experiment shows that even in this unfavorable combination transfusion may benefit. **E-c**
Result: Aug. 18, 1916—Husband reports, "Fairly well."

280. Sept. 20, 1915. Female—27. Jaundice. Numerous attacks of biliary colic since cholecystectomy at Mass. General Hospital in July, 1912 (No. W. S. 183181). Pre-op. diag.—Obstruction of common duct from (1) stone; (2) kinking from adhesions. Op. (E. A. C. and A. R. B.) —Duodenum mobilized and common duct found greatly dilated down to a strictured point just at the edge of duodenum. Adhesions separated
E-c enough to free this obstruction. Common duct was not opened. Abdominal wound closed. Comp.—Slight serous discharge for 2 days. Immediate relief of symptoms.
Result: Aug. 7, 1916—Physician reports that "she says she is quite well."

281. Nov. 17, 1915. Male—70. A left inguinal hernia of long standing, size of two fists. Pre-op. diag.—Hydrocele and hernia. Op. (E. A. C. and A. R. B.)—Spinal anæsthesia attempted by Dr. Freeman Allen, because patient had chronic bronchitis with profuse purulent sputum. Anæsthesia unsatisfactory, so anæsthol was used. Tumor proved to be wholly a hernia of small intestine, with no fluid or omentum. It must have contained most of the small intestine. Owing to the size of the hernia, the chronic bronchitis, and the age of the patient, the testicle
E-c was removed and the canal closed tightly. Comp.—Cough very severe, but wound healed perfectly. Great improvement after syrup of hydriodic acid. Aug. 18, 1916—Exam.—Scar solid. Now has a large right inguinal hernia. Operation advised. Nov. 16, 1916—Re-entered. Scar of former operation firm. Op. (E. A. C. and W. P. C.)—Novocaine. Radical cure of hernia by Ferguson method. Testicle was not removed. Comp.—Slight hematoma; entirely healed on 20th day. Chronic bronchitis still persists.
Result: Jan. 15, 1917—Well.

282. Nov. 18, 1915. Female—55. Recurrent attacks of biliary colic. Pre-op. diag.—Gallstones. Op. (E. A. C. and A. R. B.)—Gall bladder was found contracted about cluster of stones and densely adherent to surrounding structures. A fistula connected it with the duodenum. Cholecystectomy and suture of duodenal fistula. An adherent, partially
E-j obliterated appendix removed. The wound was badly soiled in removing gall bladder, and three drains were left. Comp.—The drains were removed on the 5th day, which proved an error of judgment, because a residual abscess formed which had to be opened with the finger on the 16th day. This delayed the patient's convalescence about 10 days; otherwise there was no complication.
Result: Feb. 22, 1917—Husband reports, "Well."

283. Nov. 18, 1915. Female—49. Vague abdominal pain. Chronic discharge from left nipple. Appendix had previously been removed by E. A. C., but same pain persisted. A single gallstone shown by X-ray. Pre-op. diag.—Gallstone, pericecal adhesions. Op. (E. A. C. and A. R. B.)—One small adhesion of omentum to appendix scar separated. No peri-
E-c cecal adhesions found. Gallstone removed and gall bladder drained. Comp.—None. Consultation with Dr. R. B. Greenough in regard to
E-d breast, which he considered chronic mastitis, and for which he did not advise operation at present.
Result: Aug. 2, 1916—"After returning home, a small abscess came in the scar." Probably due to a tie. "Soon healed." "Breast continues to discharge." "Do not gain as I wish in strength."

284. Nov. 22, 1915. Female—43. Metrorrhagia for 2 years. Large abdominal tumor noticed one year. Loss of strength. Two hard nodules size of marble in old scar of acute appendix. Op. by E. A. C., Oct. 17, 1905, at Mass. General Hospital (No. 144820 E. S.). Pre-op. diag.—Papillomatous ovarian cyst and post-operative hernia. Op. (E. A. C. and A. R. B.)—Local anæsthesia. Appendix scar with nodules excised and

ventral hernia repaired. Exploration with finger in abdomen showed a large, smooth, movable tumor, also whitish nodular metastases in the walls of both large and small intestines. In view of the metastases present, it was considered unwise to remove the tumor. The specimens removed with the scar were given to Dr. J. H. Wright for pathologic examination. He submitted the following report: "Microscopical examination of sections from the two fibrous nodules in the subcutaneous tissue shows the following: They consist of connective tissue not sharply demarcated from the surrounding connective tissue, and some epithelial elements. The epithelial elements are in the form of tubular structures lined with cuboidal or cylindrical epithelium. These structures are disposed singly or in small groups well separated from each other. Immediately about the tubular structures, in many instances, is an accumulation of cells resembling the various forms of cells found in the interstitial tissue of the endometrium. The tubular structures themselves, in many instances, resemble endometrium tubules. Some of the tubular structures are quite large in size, and there is considerable variation in their size. I can make out no unstriped muscle fibres in the connective tissue which makes up the greater part of the tumors. The microscopical appearances of these groups of tubular structures, with their accompanying cells, are very like those of the islands of endometrium found in adenomyoma of the uterus. It seems possible that tumors in this case are of the nature of metastases from such a tumor of the uterus." In view of this report, and of the fact that adenomyoma is a less malignant tumor than other forms, it seemed wise, at Dr. Wright's suggestion, to consider removal of the uterus. **E-d** Accordingly, a consultation was held with Dr. W. P. Graves, who agreed with Dr. Wright. **E-c** The patient was sent to the Good Samaritan Hospital (No. 2045) to recuperate for two weeks, and then returned for operation. Second operation, Dec. 21, 1915. Op. (E. A. C., with the assistance of Drs. F. H. Pemberton and A. R. B.)—The tumor, which had grown into the broad ligaments, was removed without much difficulty by supravaginal hysterectomy. After removing the tumor, the intestine was examined with great care. The small nodules previously seen were found to be scattered over the intestine, especially on the transverse colon, which was in one place almost stenosed by little tumors. The appearance of these nodules was unique in my experience; they resembled somewhat tuberculous stricture of the intestine; they were hard and malignant in feel. Dr. Wright reported in regard to the large uterine tumor: "Shows nothing but plain fibromyoma. No endothelial islands found anywhere." Comp.—Phlebitis of the femoral vein delaying convalescence about 3 weeks. During convalescence pus and blood were found in the stools, and the patient was transferred to the Mass. General Hospital (No. 206470), to be under the care of Dr. Henry F. Hewes for a more careful study of the intestinal condition.

This case presents a peculiar pathological problem, since metastatic tumors characteristic of a certain uterine growth were found in scar tissue at a distance from the uterus, which itself was not found to contain any primary growth, which may have given rise to them. The tumors in the wall of the intestines were not identified, so that it must be considered probable that these tumors in the intestines gave rise to the metastases—if so, the histologic type is a most unusual one.
Result: May 6, 1916—Has gained 16 pounds. Looks and feels well.

285. Nov. 29, 1915. Female—41. Persistent indigestion of the flatulent type, with several mild attacks of abdominal pain. Gallstone colic. Pre-op. diag.—Peripyloric adhesions from (1) gallstones; (2) duodenal ulcer; **E-d** (3) also chronic adherent appendix. Op. (E. A. C. and A. R. B.)—Obliterated appendix removed. Post-inflammatory adhesions held the first portion of the duodenum to the liver and gall bladder, as if from

previous perforation. Adhesions freed and a small induration which I considered duodenal ulcer was found just below the pylorus. Finney operation, with excision of a portion of the edge for microscopic examination. Comp.—None, except a good deal of post-operative vomiting. Pathologic exam. of specimen removed showed no ulceration, but I was convinced clinically that I could see a very small ulcer, through which a stitch was passed.
Result: Nov. 30, 1916—Well.

286. Dec. 4, 1915. Female—39. Under care of Dr. W. P. Graves. Fibroid of uterus. Op. (W. P. Graves and F. H. Pemberton)—Supravaginal hysterectomy. Comp.—None.

O K

Result: Mar. 28, 1917—Well. Scar solid. Twice since operation a swelling the size of a half horse-chestnut has appeared near lower end of wound; it lasted a few weeks and then disappeared. This was probably cyst formation in a bit of transplanted ovary. On each occasion there was an increase of hot flashes.

287. Dec. 9, 1915. Female—62. Metrorrhagia for 2 years. Never profuse or prolonged. Loss of weight and strength. Diag.—Uterine polyp. Operation was postponed, because sugar was found in the urine.

P-d

Result: Aug. 2, 1916—Physician reports: "Has had very slight bleeding on two occasions, but none for some time. She became sugar-free on Allen treatment, and remained so for 6 weeks, but now she shows some sugar on a modified diet. She feels at present quite well."

288. Dec. 29, 1915. Female—46. Under care of Dr. W. P. Graves. Pre-op. diag.—Multiple fibroids or ovarian cyst. Op. (W. P. G. and F. H. P.) —Appendectomy. Supravaginal hysterectomy for multiple fibroids. Comp.—Mild phlebitis in calf of leg, not delaying convalescence. Oct. 14, 1916—Has been troubled with constipation since spring. Weakness increasing. Has felt unable to work. Exam.—Tumor palpable by rectum and by abdomen, apparently not connected with cervix. Probable diag.—Cancer of rectum. Dec. 18, 1916—Dr. Graves writes: "I was called in to see —— yesterday, and found her with an almost complete obstruction of the bowels. On account of the emergency of the case and the nearness to the Free Hospital, I took her there and operated on her this morning. I found the abdomen filled with huge adhesions, thick and tough; some of them two and three fingers in breadth. The adhesions were scattered about and did not seem to have any particular relationship to each other. The chief obstruction was in the rectum, beginning about 2 inches from the anus, the rectum and sigmoid being twisted several times on itself and the coils attached by these extraordinary adhesions of dense scar tissue."

E-c

P-d?

E-d?

"The operation was an extremely difficult one and took me nearly 4 hours. As the large intestine was enormously dilated, and the patient has a very small abdomen, there was much exposure of the intestinal content, with the result that the patient left the table in profound shock. I have never seen anything like this case, and am at a loss to account for the condition. A large piece of tissue attached to the abdominal wall, that looked and felt like cancer, showed microscopically dense fibrous tissue with areas of necrosis and calcification."
Result: Dec. 19, 1916—"I am sorry to say that —— died 24 hours after the operation, not being able to recover from shock. There was no autopsy, and I can shed no further light on the cause of the trouble. I may say that the adhesions were confined entirely to the large intestine and occurred at intervals in its entire length from the cecum to anus. It seemed to be some form of colitis. She passed considerable gas after the operation and some black, tarry, fecal matter which was present before the operation. There is some clinical evidence that it might have been a progression of some lesion which I did not find at the

time of the first operation, as you suggested. She was not relieved of the severe constipation which she had before that operation, and it seemed to get progressively worse. The condition is one with which I am not familiar."

289. Dec. 31, 1915. Female—31. Persistent blood-stained uterine discharge. Had previously been twice curetted by other surgeons. Chronic constipation, fatigue. Poorly nourished. Pre-op. diag.—Uterine polyp, chronic salpingo-ovaritis, prolapsed cystic ovaries. Ptosis. Op. (E. A. C. and A. R. B.)—Supravaginal hysterectomy. Diag. correct in detail. P-d
Normal appendix also removed. Uterus contained a polyp attached high in fundus, and several small uterine fibroids. Comp.—None.
Result: Aug. 3, 1916—Some improvement, but still very nervous. Has hot flashes and constipation, and other minor troubles.

290. Jan. 4, 1916. Boy with early acute appendicitis. Transferred in a few hours to the Massachusetts General Hospital, because his father would not guarantee the hospital fee. M. G. H. (No. 206079).

291. Jan. 12, 1916. Female—49. Tumor of breast. Pre-op. diag.—Cancer, possible adenoma or cyst. Op. (E. A. C. and A. R. B.)—Tumor removed and examined immediately by Dr. J. H. Wright, who considered it non-malignant; but as other cysts were present, whole breast gland and adjacent axillary glands removed. Comp.—None. Dr. Wright's pathologic report follows: "I have prepared paraffin sections from 14 different places in the breast of case 291, Jan. 13, 1916. All but one O K
of the sections show appearances of chronic proliferative mastitis. In one small section, however, there is a small area which is clearly of carcinomatous nature." In view of this report and the early character of the disease, it seemed to me unwise to recommend further dissection of the axilla, although at the original operation only that group of glands which were adjacent to the breast were removed. Comp.—None.
Result: Aug. 3, 1916—Letter—Well.

292. Jan. 14, 1916. Male—54. Chronic dyspepsia for many years. Blood pressure 220. Worse for the last 2 years. Pre-op. diag.—Ulcer on gastric side of pylorus, possibly malignant. Op. (E. A. C. and G. F. Leland, Jr.)—Indurated ulcer just above pylorus was removed by partial gastrectomy. Comp.—Slight serous discharge from wound in first week. No pus. Pathologic report by Dr. Wright: "The piece of stomach wall presented an irregular ulcer about 16 mm. across. The mucosa in the neighborhood was elevated and the wall of the stomach beneath and near the ulcer was thicker than normal. Microscopical examination of paraffin sections involving the tissue at the base and margins of the ulcer shows at the base fibrosis and chronic inflammatory tissue. At the margins in the situation of the mucosa there is infiltration with atypical epithelial cells arranged in columns and in P-d
irregular tubules. This infiltration apparently does not extend beyond the limits of the mucosa. It is possible that we have in this case an E-c
early carcinoma. I cannot convince myself that the atypical cells above mentioned are not to be regarded merely as manifestations of efforts at repair on the part of the mucosa."

Soon after the patient returned home, he began to lose ground again for some unknown cause, apparently business worries. The gastric condition had improved, but his general strength did not, and his weight steadily became less. He returned to the hospital on May 22, 1916, for observation, having had a sudden attack of hemianopsia 2 weeks before. Under rest and enforced feeding his condition improved for a time, but at the end of 3 weeks he had an attack of facial paralysis and several periods of cardiac distress accompanied by tachycardia. At this time an aortic murmur appeared. He was transferred to the

Peter Bent Brigham Hospital (No. 9374) on June 21, 1916, with a diagnosis of endocarditis and emboli.
Result: Physician reports that patient died of lung complications on July 22, 1916. Diagnosis of endocarditis was confirmed by autopsy. (Streptococcus septicæmia with emboli.) Scars in stomach O. K.

293. Jan. 21, 1916. Male—62. Carbuncle on back of neck. Chronic nephritis. Treated with boric acid poultices without operation. Comp.—None.
P-d *Result:* Aug. 3, 1916—Well. It took 8 weeks in all for the carbuncle to heal. After it healed, two others came, one on the left costal border and one on the left hand, which lasted about 3 weeks. Scar is inconspicuous. Nephritis is not troublesome. No edema of ankles or face.

294. Jan. 31, 1916. Male—50. Typical case of subacromial bursitis. Pre-op. diag.—Calcification beneath base of subacromial bursa. Op. (E. A. C.
O K and A. R. B.)—Local anæsthesia. Bursa incised and ½ dram of calcareous material removed. Comp.—None.
Result: Aug. 1, 1916—Letter—"I am entirely free from pain. Recovery seems permanent. Motion is as good as ever. Playing golf better than ever."

295. Feb. 1, 1916. Male—43. Acute abdominal pain for 24 hours. Tenderness in small mass at McBurney's point. Distention. Pre-op. diag.—Acute appendicitis. Op. (E. A. C. and A. R. B.)—Tumor proved to be a mass of strangulated, purple, congested omentum, adherent to the
E-d parietal peritoneum at the site of tenderness; below this a mass of adhesions constricting ascending colon. The affected portion of omentum was removed. Appendix long, hard, stiff, and full of concretions. Appendectomy. Lane's kink, but not disturbed. Post-op. diag.—Torsion of omentum. Chronic appendicitis. Comp.—None.
Result: Aug. 29, 1916—Exam.—Well. Scar solid.

296. Feb. 7, 1916. Male—54. Cancer of lip; small lipomas of back and shoulder. Op. (E. A. C. and A. R. B.)—Both lipomas removed. V-shaped excision of lip and dissection of submental glands. Patho-
O K logic report showed cancer of lip, but the glands showed no evidence of involvement. Therefore, a thorough dissection of the neck was not done. Comp.—None.
Result: Jan. 9, 1917—Well.

297. Feb. 10, 1916. Female—36. Several attacks of right-sided abdominal pain. Prolapsed vaginal walls. Pre-op. diag.—Chronic appendicitis. Lacerated cervix and peritoneum. Op. (E. A. C. and A. R. B.)—Re-
O K moval of strictured appendix distended with clear fluid. Plastic operations for cervix and perineum. Comp.—None.
Result: Aug. 8, 1916—Letter—Well.

298. Feb. 16, 1916. Female—57. A slight ulceration on the right edge of the tongue opposite a sharp tooth. Pre-op. diag.—Epithelioma of tongue. Op. (E. A. C. and A. R. B.)—Excision of right quadrant of tongue without dissection of neck. Pathologic report follows: "The specimen from the tongue, case 298, shows hyperplasia of the epithelium and very marked infiltration of the submucosa with plasma cells and cells of the lymphocyte series. There is little or no tendency for the
O K epithelium to invade the underlying tissue. I am unable to make up my mind whether this specimen represents a chancre, a leukoplakia or a beginning carcinoma. I would suggest a Wasserman test." A Wasserman test was negative. Comp.—None.
Result: Feb. 26, 1917—Physician writes that patient had a very small ulcer come at site of scar. It persisted for 3 months and then disappeared.

299. Feb. 16, 1916. Male—57. Mole on temple. Op. (E. A. C. and A. R. B.) —Excision. Pathologic report by Dr. Wright—Papillomatous mole. Comp.—None. **O K**
Result: Aug. 9, 1916—Letter—Well.

300. Feb. 19, 1916. Male—5. Tuberculous glands of neck. Previously operated on by E. A. C. for acute abscess, but now healed and showing tendency to increase. Op. (E. A. C. and A. R. B.)—Dissection of upper half of right neck. Comp.—None. **O K**
Result: Sept. 11, 1916—Exam.—Well. Upper part of scar slightly keloidal.

301. Feb. 23, 1916. Female—44. Small tumors in both breasts. Pre-op. diag.—Cancer of right breast and cystic disease of both breasts. Op. (E. A. C. and A. R. B.)—Left breast removed and at once examined by Dr. Wright, who considered the specimen suspicious enough to advise dissection of axilla. Right breast also removed. Comp.—None. **E-d**
Final pathologic report, "A number of sections from various places in the breasts show a good deal of epithelial proliferation, but nothing that I am confident is carcinoma."
Result: Aug. 9, 1916—Exam. by Dr. B.—Scars O. K. except for annoying irregularity in one. Otherwise well.

302. Feb. 25, 1916. Female—44. Persistent abdominal and pelvic pain. Worse at ctm. and sometimes coming in severe attacks. Pre-op. diag. —Uterine fibroids. Adhesions right ovary, strictured appendix. Op. (E. A. C. and A. R. B.)—Complete supravaginal hysterectomy. Uterus contained many small fibroids. There was a hydrosalpinx and cystic left ovary. Strictured appendix removed, and also two gallstones the existence of which had not been suspected. Gall bladder was drained through a stab wound. Comp.—Trifling sepsis in median wound. Mild sloughing about drainage tube. Hot flushes and erythema with intense itching. **E-d** **E-c**
Result: Aug. 3, 1916—Well. Has just returned to work. Dec. 9, 1916 —Complains of tenderness in upper wound following strain. Exam.— Well. Scars O. K.

303. Feb. 27, 1916. Male—33. Fistula in ano of 4 months' duration. Op. (E. A. C. and A. R. B.)—Excision of fistulous tract and cauterization of hemorrhoids. Comp.—None. **O K**
Result: Oct. 16, 1916—Friend reports, "Well."

304. Mar. 1, 1916. Male—45. Many vague abdominal symptoms. Introspective. Came for thorough examination. X-ray examination suggested chronic colitis. A greatly enlarged seminal vesicle was found with retention of spermatozoa, but no pus. Dr. J. D. Barney in consultation. Probable diag.—Nephroptosis and kinking of right ureter. Distended seminal vesicle. Massage advised. **P-d**
Result: Jan. 31, 1917—Somewhat better digestion, but otherwise no marked change.

305. Mar. 4, 1916. Male—53. An emergency case of general peritonitis with classical symptoms of board-like rigidity, collapse, cyanosis, and agonizing pain. Onset sudden, 20 hours before. Had not called physician until 2 hours before arrival at hospital. Pre-op. diag.—Perforated duodenal ulcer. Op. (E. A. C. and A. R. B.)—Perf. gangrenous appendix with peritoneal cavity containing free pus and the intestines distended and cyanotic. The gangrenous appendix was found to have sloughed off at the base and several large concretions lay almost free in the peritoneal cavity. Appendectomy and drainage. Comp.—Operation gave no relief; intense pain continued; peristalsis did not start up; persistent vomiting—only temporary relief by lavage. **P-d** or **E-s**
Result: Patient died on 4th day, in spite of an enterostomy which was

done after the distention became so severe as to cause the prolapse of a coil of bowel through the abdominal wound.

306. Mar. 4, 1916. Female—63. Adherent subacromial bursitis. Massage, baking and exercise with considerable relief.

O K *Result:* Aug. 3, 1916—Letter—"Shoulder is very much improved, but there is still some stiffness."

307. Mar. 5, 1916. Female—44. Persistent menorrhagia for 2 years. Pre-op. diag.—Intrauterine polyp and intramural fibroids. Retroversion. Op. (E. A. C. and A. R. B.)—The appendix was full of soft concretions;

O K removed. Supravaginal hysterectomy was done and the uterus found to contain a polyp size of an olive, and other intramural fibroids. Comp. —None.

Result: Dec. 2, 1916—Physician reports, "Well."

308. Mar. 13, 1916. Female—55. Abdominal tumor extending from pelvis 2 inches above umbilicus. Pre-op. diag.—Fibroma of uterus, or cystoma of ovary. Op. (E. A. C. and A. R. B.)—Tumor proved an extensive malignant mass involving all pelvic organs and invading parietal peritoneum with little tubercles. Piece of peritoneum excised and reported adeno-carcinoma (psammoma) by Dr. Wright. Condition considered inoperable and abdomen closed.

On reflecting on this case, it occurred to me that as the tumor was evidently partly cystic, it might be possible to obtain through and through drainage and treat the tumor with radium from inside out through the pathway thus obtained. The patient's relatives were, therefore, sent to consult Dr. H. A. Kelly of Baltimore, Dr. John G. Clark of Philadelphia, Dr. Francis D. Donoghue, and Dr. R. B. Greenough of Boston, to see whether such an operation would be justifiable, and it was advised that the attempt should be made, although no precedent existed.

On Mar. 22 I operated again and carried a large rubber tube through the mass from the abdomen out the vagina. By introducing radium (obtained through the courtesy of the Huntington Hospital) through this tube, a thorough course of treatment was given.

E-d To my great astonishment the bulk of the tumor vanished, so that at the time of her discharge on June 29 there was only a small pelvic mass left. From being moribund, her condition had become one of almost perfect health.

After this she received several external radium treatments at the Huntington Hospital (No. 16.148) which were unfortunately followed by a severe burn of the abdominal wall, from which she suffered a great deal.

On Mar. 21, 1917, she re-entered for treatment of the radium burns, which proved so intractable that I decided to excise them. At this time her general condition was excellent, and the only remains of the original tumor was an irregular pelvic mass occupying about half the pelvis.

Apr. 10, 1917. Op. (E. A. C. and G. A. Leland, Jr.)—The burns were excised and the abdomen opened. The pelvic mass seemed operable, and after a five-hour operation, I succeeded in removing it with the uterus and adnexa. To my great surprise the peritoneum now showed no trace of disease, and the uterus and its adnexa, which previously were indistinguishable in the cancerous mass, were now plainly recognizable, although adherent. The disease seemed wholly confined to the ovaries, which measured 7½ x 6½ x 4 cm. and 8 x 6½ x 5 cm., respectively. Vaginal drainage was established, and the abdominal wound was closed. The appendix, which contained a concretion, was not removed. Microscopic examination showed that the ovarian tumors resembled the original tumor, but the cells showed no metastases. In the abdominal scar a few small areas of disease were also found. Comp.

—An abscess in the abdominal fat and a very small recto-vaginal fistula.

Result: June 23, 1917—The wounds have healed and the patient is in apparently good health.

It is interesting to note also that a small pedunculated fibroid tumor which was present at the first operation was removed at the last operation. It showed no apparent change in size, in spite of the energetic radium treatment.

I attribute the favorable outcome in this case to the following factors:

1. The tumor could be treated from within outward.
2. The calcareous deposits by the cancer cells indicated that there was a tendency towards replacement of cancer tissue with lime salts.
3. The calcareous atoms could set up secondary radiation.
4. The toxic products of destruction could be drained away.
5. The patient had already shown that she could develop a very large malignant tumor without producing general cachexia.
6. The patient herself showed indomitable optimism and courage.

The writer has previously had two surprising cases of peritoneal cancer, one of the papillomatous type. The patient is now free from the disease, 16 years after the original laparotomy, which showed malignant peritonitis. The other, whose peritoneum showed adenocarcinoma, is still alive and free from the disease, 7 years after an exploratory operation. In the first case drainage was established, and after 10 years a secondary operation was done and a large tumor removed; but in the second case no treatment was given, and nothing was removed except a piece for pathologic examination. Both cases are verified by sections preserved in the laboratory of the Mass. General Hospital (No. 167749) (No. 664–327 E. S.).

309. Mar. 15, 1916. Male—65. Epidermoid cancer of external canthus left eye, size 25-cent piece, and apparently attached to the malar bone. Edema of conjunctiva. Recurrent from operation 2 years ago. Excision advised by E. A. C., but Dr. R. B. Greenough, who was called in consultation, advised radium; and as the patient preferred not to be operated on, he was transferred to the Huntington Hospital, and treated by radium (No. 16.99). P-d
Result: Dec., 1916—Still under treatment at Huntington Hospital.

310. Mar. 18, 1916. Female—39. Acid indigestion. Hunger pain. Loss of weight. Weakness. Inability to expel feces. Perineal lacerations. Came for thorough examination, diagnosis, and advice. Bismuth examination showed no abnormality of stomach or intestines. Constipation entirely due to inactivity of the rectum, probably because of habit and slight hemorrhoidal condition. Probable diag.—Chronic appendix and possible gallstones, but operation was not urged until the patient had corrected her faulty intestinal habits, to see whether that alone would not relieve her symptoms. O K
Result: Feb. 28, 1917—Much better, but still minor stomach symptoms.

311. May 23, 1916. Male—50. Left inguinal hernia for about 2 years. Op. (E. A. C. and A. R. B.)—Local anæsthesia. Radical cure by Ferguson method. Comp.—None. O K
Result: Mar. 8, 1917—Well.

312. Mar. 28, 1916. Female—16. Acute pain for 7 days. A rounded pelvic tumor projecting into rectum. Pelvic and left abdominal tenderness. Pre-op. diag.—(1) Impacted ovarian cyst. (2) Acute appendix with pelvic abscess. (3) Tuberculous peritonitis. Dr. A. K. Stone in consultation considered acute appendicitis most probable. Op. (E. A. C. and A. R. B.)—A large pocket of odorless pus was opened and drained. Origin not determined, but probably appendicial. It was felt unwise O K

to break up the inflammatory wall to remove the appendix. Comp.—None.
Result: Oct. 25, 1916—Exam.—Well. Scar O. K.

313. Apr. 6, 1916. Female—20. Persistent metrorrhagia for 2 months. Previous irregularity. Lacerated cervix. Pre-op. diag.—Uterine polyp. Op. (E. A. C. and A. R. B.)—Internal os dilated and about 2 drams of soft material, probably polyp, curetted out. Trachelorrhaphy. Pathologic report: "Microscopic examination of the curetting shows that the fragments consist of rather atypical endometrium. No evidence of malignant disease." Comp.—None.
O K
Result: Sept. 16, 1916—Letter—Well, except for feeling "pretty sick" at last ctm.

314. Apr. 8, 1916. Male—34. Persistent pyuria and dull pain in left flank. X-ray showed calculus in left kidney. This case was previously reported by E. A. C. in the *Boston Medical and Surgical Journal,* Vol. clviii, No. 22, pp. 828–831, May 28, 1908. Patient had been operated on for intravesical cyst of the ureter, which was removed with a large number of calculi. The dilated ureter and renal pelvis had never returned to normal. X-rays had been taken from time to time, but not until recently did they show any calculus formation. Dr. A. L. Chute in consultation advised operation. Op. (E. A. C. and A. R. B.)—Nephrectomy. The ureter, which had previously been so much dilated, was found to have contracted to approximately normal size. In spite of the presence of stone, the kidney substance appeared normal. Comp.—None.
E-j
Result: Aug. 3 1916—Letter—Well. "Urine is perfectly clear."

315. Apr. 17, 1916. Male—62. Under the care of Dr. H. H. Haskell. Senile, mature cataract of left eye. Right eye had previously been successfully operated on by Dr. Haskell. Comp.—Rupture of corneal wound 10 days after operation—the wound having fully healed and bandage omitted 3 days previously.
E-c
Result: Sept. 7, 1916—Physician writes: "Distant vision practically normal, and reads smallest print easily. He hasn't even enough astigmatism to amount to anything, although a prolapse usually causes a high degree. Ord. dist. L. V. $\overline{c}$ + 10. = + 1.50 × 0′ = part of 1. Ord. near. L. + 13. = + 1.50 × 0′ reads diam.

316. Apr. 25, 1916. Female—52. Abdominal pain, distress and distention 10 days. Not severe enough to make her call a doctor. Rounded, fluctuant pelvic tumor, size of two fists. Consultation with Drs. C. A. Porter and W. P. Graves. Pre-op. diag. by E. A. C.—Pelvic abscess from (1) Appendix. (2) Salpingitis with ovarian cyst. By C. A. P. —Tumor connected with uterus, tubo-ovarian, perhaps with infection. By W. P. G.—(1) Ovarian cyst with ascites. (2) Edematous fibroid. (3) Tubo-ovarian cyst or abscess. Op. (E. A. C. and A. R. B.)—Right rectus incision. A large, foul pelvic abscess opened and drained. Considered unwise to look for appendix in inflammatory wall. Comp.—None. Superficial wound still granulating at time of discharge, June 13. Final diag.—Probably acute appendicitis, or perforated diverticulitis of sigmoid. Possibly salpingitis.
O K
Result: Mar. 19, 1917—Slight ventral hernia in scar. Uterus adherent. Cervical polyp removed. Feels perfectly well. No symptoms of any kind.

317. Apr. 26, 1916. Female—33. Menorrhagia. Recently discharge of a sloughy membrane through os uteri. Pre-op. diag.—Fibroids of uterus and uterine polyp. Op. (E. A. C. and A. R. B.)—Supravaginal hysterectomy, right ovary removed, also a small strangulated hydatid cyst. Left ovary *in situ.* Appendix 6 inches long, distended with old feces,
O K

adherent and kinked. Uterus on section showed multiple fibroids and two intrauterine polyps. Comp.—None.
Result: Sept. 1, 1916—Physician reports, "Well."

318. May 3, 1916. Male—48. Tumor in central portion of tongue, size of marble and hard. 4 weeks' duration. Pre-op. diag.—(1) Chronic abscess. (2) Dermoid. (3) Cancer. Dr. J. H. Wright present. Local anæsthesia. Tumor incised. Thick pus escaped. Dr. J. H. W. reported that section of wall was chronic inflammatory tissue with no malignancy. Comp.—None. **O K**
Result: Aug. 23, 1916—Letter—"My tongue is all well, does not bother me in the least. I have gained 17 pounds since I entered your hospital, and am feeling first rate."

319. May 6, 1916. Male—44. Loss of weight and strength. Hyperacidity. Vague abdominal discomfort, especially in right iliac fossa. Patient apprehensive, imagines he has some internal disease. Pre-op. diag.—(1) Cecum mobile. Chronic appendicitis. (2) Cancer of cecum. Op. (E. A. C. and A. R. B.)—Local anæsthesia. Appendix sessile; contained several fecoliths. Cecum mobile and general visceral ptosis. Pylorus and gall bladder normal. Comp.—None. **P-d**
Result: Feb. 28, 1917—Better, but still has a variety of vague complaints.

320. May 20, 1916. Female—38. Arthritis of both knees and right elbow. Both knees contracted to an acute angle, cannot be straightened. Dr. R. B. Osgood took charge of the case. Tonsils which were buried, adherent and contained suppurating crypts, were removed by Dr. J. L. Goodale without comp. Aug. 18, 1916—At time of discharge from hospital, condition of knees greatly improved—they have been straightened, now permitting her to stand on her feet with especially constructed splints. **P-d**
Result: Apr. 16, 1917—Letter—Still suffering from multiple arthritis. Unable to walk without crutches.

321. May 21, 1916. Male—63. Pain in right shoulder and inability to use arm in abduction since accident 2 years previously. Pre-op. diag.—Ruptured supraspinatus tendon (rt.). Op. (E. A. C. and A. R. B.)—Subacromial bursa incised. The whole supraspinatus was found to have been torn from the tuberosity, as well as a portion of the infraspinatus. A remnant of the supraspinatus was pulled forward and attached with silk to the stump of the tendon still left on the tuberosity. The arm was kept in abduction for 2 weeks. Comp.—None. **O K**
Result: Dec. 18, 1916—Patient's ability to use arm has increased. External rotation and abduction are now nearly normal in extent, but the motion is slow and irregular and lacks power. There is a decided jog as the tuberosity passes under the acromion. Patient states that his arm is decidedly better than it was.

322. May 22, 1916. Female—43. Abdominal pain, leucorrhœa, and supposed tumor. Patient had had several previous abdominal operations. Dr. R. B. Greenough, who had seen patient previously, was called in consultation. No tumor could be demonstrated, and a provisional diag. of chronic salpingitis and post-operative adhesions was made, but operation was not advised. Symptoms subsided under rest and douches. **O K**
Result: Mar. 22, 1917—Looks and feels well. Not examined.

323. May 31, 1916. Male—60. Large carbuncle back of neck. Treated expectantly. Slow, steady improvement. Small granulating area at time of discharge at the end of the 5th week.
Result: Aug. 14, 1916—Exam.—Since leaving the hospital, there have been a few furuncles in the neighborhood of the scar. One is present today, containing a drop of pus. Scar is not conspicuous. General health good. **O K**

O K 324. June 2, 1916. Female—26. Alveolar abscess treated by her own dentist. No op. Comp.—None.
Result: Aug. 31, 1916—Still has trouble with sinus.

O K 325. June 9, 1916. Male—70. Swelling of left cheek, one-half size of fist, from ulcerated tooth 9 weeks before. Dr. K. H. Thoma in consultation. X-ray showed an unerupted wisdom tooth. Bad organic heart disease. Op. (K. H. T.)—Novocaine. Tooth chiseled out. Comp.—None.
Result: Dec. 22, 1916—Physician reports, "Has had no trouble from his jaw."

O K 326. June 12, 1916. Male—49. Pre-op. diag.—Epithelioma over right ear. Op. (E. A. C. and A. R. B.)—Tumor excised and the gap closed by plastic from temple. Comp.—None. Pathologic report—Papilloma with malignant change.
Result: Dec., 1916—Well.

P-d 327. June 13, 1916. Male—59. Came for relief of pain in left hip, loss of weight and strength. Physical examination revealed a stricture of the rectum, and by X-ray pathologic changes in the ischium were disclosed. Bit of rectal mass removed proved to be adeno-carcinoma. Case considered inoperable—so much ulcerated that colostomy was unnecessary.
Result: Sept. 15, 1916—Died of cancer of rectum.

E-d 328. June 19, 1916. Male—54. Loss of weight and strength for 2 years. Epigastric pain for one year. Blood present in stomach contents. No Hcl. Palpable, distended gall bladder. Pre-op. diag.—Cancer of stomach. Metastasis in liver and pre-pancreatic glands. Op. (E. A. C. and G. A. Leland, Jr.)—Stomach normal. Gall bladder distended, stone impacted in cystic duct. Cholecystectomy. Comp.—None.
Result: Nov. 14, 1916—Exam.—Well. Scar solid.

O K 329. June 26, 1916. Male—22. Unsightly sinus on forehead since struck with skate 2 years ago. There has been a small sinus which opens at intervals and discharges crumbs of bone. Op. (E. A. C.)—Old scar excised. It was found that the anterior wall of the frontal sinus had been crushed back into the sinus. As no definite necrosis was found, it was thought best not to remove any of the bone. Comp.—None.
Result: Aug. 29, 1916—Father reports, "Has been quite well since the operation, and the scar has given him no trouble."

P-r 330. June 28, 1916. Female—27. Vague abdominal symptoms and neurasthenia. While waiting for operation, developed alveolar abscess. Advised to return when mouth is in better condition. No report, and did not return.

P-d 331. July 5, 1916. Female—51. A large pelvic tumor noticed for only a week. Has been poorly for 6 months, with some pain in the epigastrium for 3 months. Pre-op. diag.—Uterine fibroids or advanced papillomatous cysts. Op. (E. A. C. and A. R. B.)—An irregular mass of cancer with metastases in omentum and peritoneum. Origin could not be determined. Small nodule from omentum removed for examination. Pathologic report by Dr. J. H. Wright—Carcinoma. Comp.—None. Transferred to Huntington Hospital for radium treatment, July 18 (No. 16.279; 118).
Result: Physician reports that she died about one month later.

E-d
P-d 332. July 27, 1916. Female—22. Pre-op. diag.—Dysmenorrhœa from anteflexion. Cervix very readily dilated and uterine cavity curetted. Left ovary could be felt prolapsed into posterior cul-de-sac. Comp.—None. In view of the fact that the os was readily dilated and that the prolapsed ovary was found, the probable diagnosis was changed from anteflexion to prolapsed ovary, but the result of the operation may determine whether first diag. was correct.
Result: Dec. 11, 1916—Physician reports, "No marked improvement."

333. July 9, 1916. Male—28. A septic pilonidal sinus of 2 months' duration. Op. (E. A. C. and A. R. B.)—Excision of fistulous tract. **O K**
Result: Aug. 29, 1916—Still granulating spots.

334. July 10, 1916. Female—59. Under care of Dr. K. H. Thoma. Empyema of left antrum. Pre-op. diag.—Empyema of left antrum, tumor of right antrum. Op. (K. H. T.)—Novocaine in spheno-maxillary fossæ. Both antra opened, cleaned and packed. There was empyema of both, and a large polypus in the right one. Comp.—None. **O K**
Result: Mar. 9, 1917—Healed, Sept. 27, 1916.

335. July 18, 1916. Male—48. A right inguinal hernia which does not descend into the scrotum. Op. (E. A. C.)—Hernia was direct, with a double sac separated by the epigastric vessels. The bladder formed a part of the wall of the inner sac. The fascia and muscles were infiltrated with fat and were so poorly developed that a very unsatisfactory closure was made. The cord was brought out at the upper end of the wound over all the layers, because the union of the internal oblique with Poupart's ligament seemed too flimsy without uniting the external oblique to it. During convalescence a small tumor in the skin over the left outer ham string was removed by Dr. Barrow. This tumor Dr. Wright reported to be fibro-sarcoma. Comp.—None. **O K**
Result: Aug. 5, 1916—Exam.—Scars O. K. Exacerbation of hemorrhoids which have bothered him for years. Operation advised.

336. July 19, 1916. Female—61. A case of chronic bacteriuria, who had had several previous operations at the Mass. General Hospital (No. 157070). Came for cystoscopy and general examination. Cystoscopy showed bladder almost normal. I have treated this patient with various urinary antiseptics for years, and have never been able to stop the bacteriuria. At one time the ureters were catheterized and the bacteria were demonstrated to come direct from the pelves of both kidneys. **P-d**
Result: Feb. 1, 1917—Condition same.

337. July 19, 1916. Male—61. Tumor of the larynx of 4 years' duration. Hoarseness and dyspnœa. Pre-op. diag.—Cancer of the thyroid gland. Op. (E. A. C. and A. R. B.)—Novocaine. A gland about the size of a robin's egg behind the left sterno-mastoid removed for pathological examination. Dr. Wright reports—Papillary adeno-carcinoma, probably thyroid origin. Comp.—None. Nov. 12, 1916—Referred to Huntington Hospital. **P-d**
Result: Feb. 26, 1917—Still under treatment with radium at Huntington Hospital (No. 16.482; 205).

Reader!

You may or you may not agree with the criticisms indicated by the symbols; of course, they are open to doubt; but the point is this:

At our charitable hospitals there is no one who dares make such criticisms at all. It is the duty of no one and it is for the interest of no one —except for the patients and for the community.

THE ADVANTAGES OF THE END RESULT SYSTEM TO SURGICAL SCIENCE

[*Read before the Surgical Section of the American Medical Association on June 7, 1917*]

My premise is that surgical science is now inaccurate and unsatisfactory, because of the constant necessity which the practical surgeon finds of compromising with accuracy in his dealings with human nature. I claim that the adoption of the End Result System by the hospitals of this country will at the same time render our work more scientific and our practice more efficient and honorable.

I define *surgical science* as that surgical knowledge which is recorded and transmissible through the written description of facts and formulated general principles. *Clinical science* comprises all the recorded transmissible facts or principles which enable us to apply all other forms of human science to the cure or alleviation of disease. *Human science* means all the recorded knowledge which is available to the human race, and includes all the various branches —geology, physics, chemistry, electricity, etc. It is the sum of all the ologies. To the clinician all the various branches of science are of value, and his true success depends on his judgment and experience in applying correctly to the sick patient whatever knowledge he possesses of the different branches of science which humanity has already put in available form.

It cannot be denied that man possesses a wonderful curiosity in regard to the facts and laws of nature. It is a part of his enjoyment of life to ascertain and to classify these facts, and to formulate into laws and principles the data which observation gives him. The truly scientific man yearns to gaze directly at the truth, but there is constantly a tremendous temptation for him to deviate from his recognition of truth or its application, so that he may serve what he supposes to be his own ends. In all branches of science one sees the observer and investigator tempted to distort what he knows to be the fact for the sake of his own purposes, and usually for the sake of his own support in the struggle for existence. In no other branch of science is this struggle between the effort to recognize the truth, and the practical necessities of existence, more apparent than it is in the practice of medicine. It might almost be said that the man who is successful in practice, *i. e.*, in applying the known facts of medical and surgical science to the actual patient, can never confine himself to definite scientific truth. He must always compromise with human nature in his patients, and give them what he can of truth without losing their confidence in him. Most practitioners claim that clinical science has not yet arrived at a point where it can stand on its own feet, as do many of the other sciences. For instance, in mathematics there is a premium on accuracy, while in medicine the premium is on the successful handling of each particular patient's combination of character and pathology.

Life is so full of deception, and human nature indulges in so many curious pretenses, that the practical man in any form of business or applied science cannot help feeling occasionally that it is useless to try to be absolutely accurate. He is commonly placed in the position where if he sticks to what he knows to be the accurate truth, he will lose the business which might help him make his living. It even may be said that the great majority of students in any branch of science sooner or later get to a stage where they feel that the effort to be accurate, logical, and sincere is hopeless; they realize that practical success demands an adaptation of science to the immediate question which they call practical. But when one stops to think whether there is or is not a fund called human knowledge, which no man knows in its entirety, and yet which is available to all men, one must acknowledge that there is such a fund. There is a basis of recorded truth in geometry, in bacteriology, in pathology, and in the other sciences from which we may draw. Yet to the hypercritical student a study of any of these sciences brings out innumerable inaccuracies. There is no branch of science which is complete, and yet of each there is a stock of knowledge which is recorded, and is transmissible from teacher to student. But the deep student finds that there is always an indefiniteness to what knowledge is possessed in each and every branch; and yet, on the other hand, his study leads him to know that he can extract from the infinite number of facts and principles which are not yet formulated and recorded a few which he himself can drag out of the darkness and put on record. He must eventually come to the conclusion that the finite knowledge which man possesses is infinitely imperfect, but that the infinite knowledge which man does not yet possess can be made finitely perfect. The possession by humanity of some imperfect knowledge, already too vast for any one mind, is a proof of man's ability to go on approaching infinite knowledge, which is the truth. Truth is the one thing worth clinging to, and is too evasive and difficult to grasp to let any opportunity to do so slip by. Truth subordinated to even a supposedly good purpose confuses and postpones human happiness.

In clinical practice, when the physician or the surgeon, for the sake of his own reputation or even for the sake of his sympathy for the patient's feelings, resorts to subterfuges or worse, the advance of clinical science is postponed. And if the advance of the science is postponed, it means the subtraction of the opportunities to use that which is postponed, for with that knowledge relief might be given to future sufferers. The physician or surgeon who subordinates a truth to his fear that the truth may be misinterpreted is actually doing harm to clinical science. In a broad way, the effect of this practice or habit of the profession (for I believe that such subterfuges are common enough to be called a habit of our profession) can be illustrated by our system of medical education. Medical science and medical ethics are taught by precept in our medical

schools, but in our hospitals too often the great surgeon or teacher shows the student by demonstration and example *that he considers it right to use his judgment* as to when to subordinate truth; and he makes pretty free use of this form of poetic license.

If a sponge is lost in an abdomen, the unfortunate fact is concealed as thoroughly as possible. For fear of damage to the surgeon's reputation and the hospital's reputation, all concerned are agreed that it is better that the patient and his friends should not know what has happened. The result has been that year after year has gone by, and no adequate measures have been taken to avoid this unfortunate happening in many hospitals. The lost sponge in the abdomen is a glaring error, obviously preventable, obviously a proof of wretched carelessness, but typical of the mediæval state of mind which permits us practitioners from the highest to the lowest to defend ourselves under the old saying, "Do not blame the doctor, he does the best he can." The lost sponge is only a glaring example of the same sort of inefficiency as a careless diagnosis, a hurried preparation, a reckless operation, or a whimsical therapeutic experiment.

But you will ask what all these platitudes on philosophy and morals have to do with the title of this paper. The answer is the description of the End Result System of Hospital Organization. There is nothing complicated about the End Result System. It is merely a plan for giving accurate, available, immediate records of each case which the hospital undertakes to treat. Its unit is an ideal result for each individual patient treated. It subordinates the individual interests of the staff, if those interests are incompatible with this ideal; it boldly encourages them, when they are not. It demands an analysis of the final result in each case treated and the fixation for responsibility of failure or success on the individual who undertakes the treatment. Such a system is truly scientific. Science is simply a record of truth. Science demands the facts about each case and their fearless record, even if brief. Efficiency demands the best possible application of recorded knowledge to each case.

I find there is a constant confusion between the essential ideas of the End Result System and the Follow-Up System. The Follow-Up System is only a step in the End Result System. The cases should be followed up, to see whether the treatment given has or has not been successful. The End Result System demands an analysis of the reasons why the case has been successful or unsuccessful, and the utilization of the knowledge thus obtained for avoiding future errors and for securing future successes. The Follow-Up System is a useful but not an absolutely necessary part of the End Result System, because a great majority of the cases can be determined as successful or unsuccessful, even as early as the time when they leave the hospital. An analysis of the causes of the success or failure in these cases can be made even without including any of the cases which leave the hospital and are followed

up afterwards. But the more that are followed up and included, the better. It is obvious that the more effective the Follow-Up System is, the more useful and satisfactory will be the conclusions formed on the analysis of the cases in general. However, I could write an End Result Report for the cases in any hospital, even if no Follow-Up System existed.

The really difficult thing about the End Result System is to induce the staff in any hospital to be willing to make a truthful acknowledgment of the personal part which contributes to the success or failure of the cases. It is here that we meet the conflict between man's insatiable desire to ascertain the truth and his supposed necessity to deceive his fellowmen for the sake of his own self-preservation or ambition. In every hospital there are certain cases where the personal element is the cause of failure. The onus caused by the fixing of responsibility in such cases is so great, that it really does bring up the question of the actual struggle for existence. Yet if we all permitted this fixation of responsibility, this onus would be pretty well distributed.

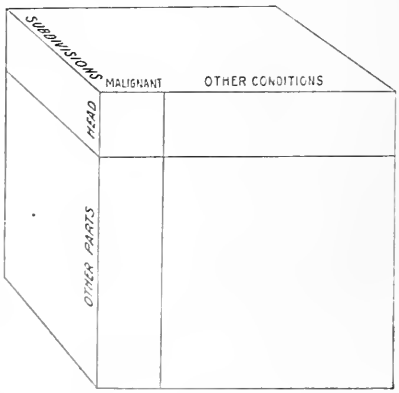
Now since the End Result System demands accurate, available, immediate records for scientific, efficient analysis, it must also demand a classification and an index of the individual pathologic conditions which the hospitals treat. There must be some practical method by which we can turn to any given class of cases, in order to find the methods of treatment which have been effective in any group. If a case of papilloma of the bladder enters the hospital, we should be able to turn at once to the records of all cases of this condition which the hospital has previously treated, in order to make immediate use of what knowledge we have obtained from the therapeutic experiments we have performed on these previous cases. We should be able not only to ascertain the methods of treatment, but the persons under whose responsibility the choice of method and its successful or unsuccessful application was made in each case. We want a simple method of finding out *who* has been successful in treating these cases and *how* he did it. The first thing is to be able to find the cases. I wish to suggest the practical value of using classifications as indices and *vice versa.* But classifications and indices will be of little use, unless there is a premium for those who use them. *A seniority system of promotion does not require them.*

Classifications are only relatively useful. Where the number of patients is small, the number of subdivisions of classification need not be large. The greater the number of patients, the greater the number of subdivisions needed in a classification. My suggestion is to use classifications as we do the indices in books. We use an index in a book, in order to make it easy to turn to a page where a certain subject is mentioned. It is on the page referred to that we find out how much and how detailed that information is. An index in a book may be classified, and still be equally satisfactory as a rapid method of leading us to the desired information. The system

of classification which I propose is simply to record each case under a number, like a page in a book. Each case will have an index reference to every anatomic and pathologic diagnosis which is mentioned in the description of the case. The index itself will merely be classified anatomically and pathologically, instead of alphabetically. In this way it will be easy to find from the index every case in which any particular disease occurred. For instance, suppose Case 161 had appendicitis, cholelithiasis, and fibroid tumor of the uterus. In looking in the index, we shall find after each of these diagnoses the number 161. By using the same method of classification of indices, we may make them practical for large or small hospitals, large hospitals merely having more subdivisions.

How shall we make a classification of the index? We must here again return to the finite and the infinite. I call your attention to the fact that if you take a straight line and divide it into halves, and one-half of this line into other halves, and so on indefinitely, you will arrive at what is called in mathematics a Variable which approaches its Limit. You can keep on dividing the half into other halves indefinitely to the end of time, theoretically, but practically you will be limited by the number of visible subdivisions you can make with your pencil. When we come to any kind of classification, we can use this same principle. By turning the line into a square, we can make our classification a double one; and by turning it into a cube, a triple one.

BASIC PLAN OF A CARD CATALOGUE CABINET
FOR STANDARD HOSPITAL USE



A suggestion for a System of Classification and Case Reference Index of Diseases, based on the principle of the Variable increasing toward its Limit, which acknowledges that the Finite is infinitely imperfect, but believes that the Infinite may be made finitely perfect.

Consecutive and permanent case numbers are essential. Begin a new series on January 1, 1918.

Such a classification is scientific. It acknowledges the infinite and the finite, and admits the impossibility of excluding the infinite from the finite or the finite from the infinite. To make a practical classification, we need merely to subdivide "other conditions" still further pathologically and anatomically. That any finite classification will be infinitely imperfect can readily be seen by the subdivisions in figure No. 1. For instance, anatomically we divide into "the head" and "other parts of the body," but where shall we say that the head is defined? How much of the neck shall we include? Is the pharynx part of the head or of the neck? Likewise in the pathologic classification we divide into "malignant" and "other conditions"—shall we include mixed tumor of the parotid as a malignant condition? Who knows? We have not yet defined the answer. The infinite has not become finite.

No more can we deny the finiteness of the infinite, for we certainly can divide "other parts of the body" into the trunk and "other parts of the body," and we can divide "other pathologic conditions" into inflammatory conditions and "other pathologic conditions." I hold that the most human science can do, is to make the infinite more finite, for the sciences of mathematics and philosophy show us that space and time, squares and circles, embody the infinite and finite. We may suppose a circle which surrounds the most infinite record of knowledge the human mind is capable of knowing, and we may likewise suppose an inner circle which bounds the knowledge which man has already accumulated—human science. It is the growth of this inner circle of finite knowledge toward the outer circle of infinite knowledge which represents the development of the human mind. It gives us satisfaction to make the inner circle expand toward the outer circle. Life may be truly happy, when human science has reached the outer circle and contains all that the human collective mind can know of Truth, collected and arranged in available form for the individual.

In this large chart which I present to you (see loose leaf), I offer a practical classification suited to our present-day knowledge of anatomy and pathology, in the intersecting squares of which are the numbers of the cases which have been operated upon at my own hospital. This classification and index are useful to me as far as my limited knowledge goes. It enables me to turn at once to any rare case, or to all the cases of any particular diagnosis which have fallen within my experience at the hospital. It is useful to me alike in studying the scientific side of my cases or the practical efficiency of the treatment which I have given. The whole chart and each subdivision in it contain the same relation of the finite and the infinite. So far as my pathologic and anatomic knowledge are finite, it is accurate; but like all things in human science, it is infinitely imperfect and inaccurate. I merely claim that it is a step in the right direction; that it accords with the circle which represents human knowledge growing toward the great outer circle which represents all possible

human knowledge. This chart could be subdivided, so that its divisions would be so detailed that one division would be found for self-inflicted gunshot injuries of the little toenail, or it could be condensed to the limits of the four-square chart shown above.

In a large hospital, one can imagine this chart forming the face of a filing catalogue in which each drawer would have the label of each subdivision. If each drawer then took advantage of the third dimension, further subdivision could be carried on, and an almost infinite number of cases could be catalogued in it.

If a hospital had such a card catalogue painstakingly, accurately, and infinitely subdivided, it would be of no use unless the human spirit in that hospital were willing to acknowledge and record its errors, and to persistently analyze their causes, in order to take steps to prevent them in the future. The seniority system, nepotism, and humbug would be gradually crowded out of such a hospital.

Unless we use a merit system of promotion instead of a seniority system, there will be little incentive for clinical accuracy. *The struggle for existence must be utilized to give the truthful and efficient an opportunity to survive.* Like the individuals in the coral reef, each must be made to add his bit to the advance of clinical science. Human nature, particularly young human nature, wants to play the game according to the rules. If it has, or can acquire, merit, it wants that merit recognized and honored, whether paid or not paid. The pay is an added proof of the justice of the honor.

Imagine nepotism and seniority in our National Game, either in the amateur or professional field! The work in a hospital is no less a team game, and the practice of surgery would be a far more interesting profession, if the game were played fairly. It needs supervision, referees, and rules, because if human nature needs them in play, it certainly needs them in the struggle for existence.

ESSENTIAL STEPS IN THE END RESULT SYSTEM FOR THE USE OF CARDS AND CHART

Treatment should not be undertaken without diagnosis. A person who takes the responsibility of treatment should not object to stating what diseases or conditions he thinks he is treating. He should not object to stating the symptoms from which he seeks to relieve the patient, nor to having the hospital and the public know whether or not he succeeded in relieving these symptoms. He should be willing and glad to state his general line of treatment or the essential findings and steps of his operation, and to record under his own signature any complications which result.

If in the organization of a hospital, diagnosis, treatment, after-treatment, and follow-up examinations are each made by different persons, each should sign under the appropriate heading.

If in a hospital these conditions are insisted upon, the members of the staff have a right to expect the administration to pay the expenses of following up their cases and of giving each the credit for his successes in the Annual Report of the institution.

Each patient who enters the hospital shall have one number and *one number only,* no matter how many times he enters.

The End Result Cards should be authoritative—signed by the persons responsible for saying what was the matter with the patient and for directing the treatment given.

End Result Cards should be filed numerically and have a name index. When a case is once reported dead, file separately.

The End Result Card is intended to be an epitome of the entire record of the life of one individual patient, so far as that life comes in contact with the hospital.

The ideal scientific record would be a complete description of the individual from his conception to his grave, together with all pathologic conditions which arise in consequence of congenital deviations from the normal or in consequence of any reaction to his environment.

In the present conditions of human society, extensive records in hospitals are impracticable except in a few instances. But extensive records are not necessary for science—brief, authoritative, accurate, fearless records of important facts are needed in clinical work today.

Our effort in designing an End Result Card has been to make a record so brief, that any hospital, however small, can use it as well as a big hospital. It is intended to be the *greatest common divisor* of all clinical records.

Therefore, do not crowd it, but arrange the important facts so clearly in your brain, that you can place them within the dimensions of this card.

Face of End Result Card

Name Mr. Edward James Gallison Age 48 M. W. S. //

Addr. of Pt. 50 Crescent St., New York City, N.Y.

" " Pt's Phys. Dr. C. M. Black, 46 Grove St., Boston.

Perm. Addr. of Fr'nd Mrs. George White, Elm St., Salem, Mass.

Date of Adm. I.	Date of Operation	Hosp. No.
6 2 14	7 7 14	204

Pre-op. Diag. Duodenal ulcer, with grave doubt of cancer of pyloric end stomach.

Post-op. Diag. Ulcer lesser curvature of stomach about an inch from pylorus. Felt very hard and suggested cancer.

Came for relief of Epigastric pains soon after meals since September. Vomiting. Achlorhydria. No hematemesis but some melena.

Opt'r C. N. Meier. Asst. E. W. Force and E. E. Calle.

Anes. Ether and local novocaine. Ether by E. E. Leed.

Opt'n. Impor. Pts. Tumor size pigeon's egg on lesser curvature of stomach. Partial gastrectomy. Gall bladder felt as if full of stones. Duodenum normal except for slight induration of pylorus. Closed without drainage.

Compl. of Convales. None. Except that during convalescence he vomited several times without apparent cause.

Aut. No. Path. Report by J. A. Wright. Cancer.

Signed A. B. C.

Date	Results
July 15, '15	Remained well until March, 1915, since which time similar symptoms returned, and also hematemesis and epigastric tumor.
Re-entry	July 18th. Exploration showed numerous metastases in liver and abd. glands. No comp. Discharged two weeks later.
Dec. 16, '15	Physician reports that he died on Dec. 1st, '15. No autopsy.

DIRECTIONS FOR FILLING OUT CHART

When 100, or, if you please, 1,000 cards have accumulated, let two persons enter the diagnoses in the appropriate intersecting squares of the Chart. One (preferably a doctor) may read the diagnoses, no matter how many there are on a card; the other (preferably an accurate accountant) may enter the number of the card in the appropriate intersecting squares for each diagnosis. When an operation has been done, he may underline the number with red ink. If the patient died in the hospital, he may bracket with black ink. When more than one diagnosis should appear in the same square, add -2 or -3 or -m = multiple to the card number.

The whole can be verified by reversing the process and calling the numbers from the squares and checking each card.

When the squares become crowded, use a new sheet and enter the last number in the upper left-hand corner.

Or if only one or two squares are crowded, enter them separately at the bottom of the sheet.

Re-entries should have new diagnoses, entered on the old charts.

In entering numbers which are large, as 224342, only the last one, two, or three figures need be entered, because the thousands will be given from the upper left-hand corner. If you now have these cumbersome large numbers, give them up and start fresh.

SUGGESTIONS AND PRECEDENTS FOR THE RECORDING CLERK

These may be increased in number by rulings of the Efficiency Committee of any individual hospital, and such rulings added to their reports.

Gallstones and other calculi should be classed under "chronic inflammation."

Displacements of organs under "unclassified," unless considered "congenital" or "traumatic."

Perineal lacerations should appear under "traumatic."

Abdominal adhesions under "unclassified abdominal," unless the organs involved are specified; *e. g.*, the gall bladder being adherent to the pylorus would be classified under chronic inflammation of both regions, but if caused surely by cholecystitis or duodenal ulcer, it would fall under the appropriate organ only.

Inguinal and femoral herniæ should appear under "traumatic" of groin, unless specified as "congenital."

Post-operative herniæ should appear under "unclassified abdominal" and "traumatic."

If in doubt, reserve for the decision of the Efficiency Committee.

See also pages 78–85.

VARIOUS USES

As An Index

If one desires to look up all the cases of a given disease of a given region, say tuberculosis of the wrist, he must look through all the cards whose numbers appear in the intersecting squares of Tuberculosis and Joints. To be sure that the recording clerk has not put any cases under other headings, he might also look through Bones; but with the double check mentioned above, the clerk would be unlikely to put such a case in any other square.

Large hospitals having a card index could use this sheet as a basis for their card index and subdivide to any extent under it, either anatomically or pathologically.

For Morbidity Statistics

The footing up of individual squares and vertical and transverse columns and their totals give statistics of all sorts, both of the incidence of a given disease and of the number of cases. A given case may have tuberculosis of the intestines and of the wrist, and thus be recorded as an instance of each of these diseases, and yet the investigator would easily see that both instances occurred in one patient.

For Mortality Statistics

Mortality appears in the chart in relation to the disease, to the combination of diseases, to the operation, to the individual, and to the hospital. To obtain the mortality in a column or in the whole sheet, it is merely necessary to make a list of all black bracketed numbers and to check off the duplicates.

If, as we suggest, in addition to the tables every hospital publishes abstracts of every fatal case, as in the Massachusetts General Hospital report, the investigator can make up his own mind as to whether he regards the death as due to any single pathologic condition or to the operation or to some inter-current calamity.[1]

For End Result Records

On the chart itself or on a duplicate, which is easily made, one may record at the end of any given period, say a year, the fact of whether the result of the treatment is known or not known. This may be done by drawing a blue line through the number. Every case that turns up after that date may be marked with a blue line on the old chart by the clerk who records the note on the End Result Card.

[1] In the chart here given, black brackets, red underlining, etc., have been omitted to prevent confusion.

As An Efficiency Study

The Efficiency Committee may use a duplicate chart to mark each number, with a colored line denoting satisfactory or unsatisfactory results.

It should be the aim of every hospital to have every square conspicuous by the presence of O. K. marks or by the absence of the marks denoting errors of judgment, skill, care, and equipment.

For the teaching hospitals, the Efficiency Committees should also aim to have some numbers in every square.

Private hospitals will inevitably aim for a high percentage of satisfactory marks.

Charitable hospitals should have the difficult squares well filled and be able to show that the deaths were under the care of men who had previously established good records in similar cases.

OBJECTIONS TO USE OF CHART

1. It is too complicated.

Answer. Try it for one month and really see if it is.

2. It is too expensive.

Answer. Try it for a year and see if it does not save the cost in the elimination of waste products.

3. It is too difficult for a house officer to decide which squares to put the diagnosis in.

Answer. Then let the senior surgeon do it, for it is the most important work in a hospital to make sure of a good Product.

4. Members of the Staff themselves would not know which square to put a given diagnosis in, and would not use it after it is done.

Answer. Then get a staff who can do it, and who will use it.

5. A large hospital would use up the sheets too rapidly.

Answer. Large hospitals should use the chart as a basis for a card index system.

6. Special hospitals would fill up some squares to overflowing and have few in the rest.

Answer. Each special hospital could use one sheet for all its diagnoses except those in the squares of its specialty, and devise a still further subdivided sheet for its special cases.

7. It does not give the sex or age.

Answer. No, nor the birthplace, nor the color of the hair and eyes. Nevertheless it is practical, if you are in earnest.

THE CHART IN PRINT

The chart itself is perhaps a cumbersome thing to print, although it is very useful in filing the numbers. In a printed report, however, the numbers can appear just as well under printed headings. As an illustration, I present the following table, which the reader can use to look up any pathologic condition in this Report, although not as rapidly as on the chart, which has many subheadings. It would, however, be merely a matter of printer's ink to put the whole chart in this form. You can use this table as an index to common conditions, rare conditions, or unnamed conditions. Try it. Find the cases of empyema, elephantiasis of the legs, or buckling of the liver. To locate the cases of empyema, you would have to look through all the numbers under inflammatory conditions of the thorax; but to find any other inflammatory condition of the thorax, you would only have to look through the same numbers. Thus time and space are saved, unless the index is in very frequent use.

Why have a long list of names in a report, except to impress the Trustees? Why invest in expensive card catalogues?

New Growths	*Inflammatory Conditions*	*Other Conditions*
Head **10, 41, 46, 55, 61, 65, 78, 79, 96, 133, 143, 146, 149, 186, 197, 223, 251, 252, 261, 267, 296, 298?, 299, 309, 326, 334, 337**	*Head* 2, 3, 16, 27, 30, 63, 67, 69, 71, 86, 89, 127, 142, 157, 171, 177, 184, 186, 193, 250, 293, 298, 300, 315, 318, 320, 323, 324, 325, 330, 334	*Head* 2, 12, 22, 43, 66, 70, 73, 79, 91, 142, 146, 186, 233, 253, 292, 325, **329**
Thorax **38, 39, 51, 78, 114, 119, 197, 268, 278, 291**	*Thorax* 4, 24, 28, 30, 36, 45, 46, 77, 80, 86, 88, 92, 96, 114, 121, 125, 127, 137, 138, 152, 165, 174, 189, 190, 200, 201, 224, 244, 246, 252, 262, 274, 278, 281, 283, 291, 292, 293, 301, 325	*Thorax* 13, 45, 54, 156, 159, 224, **233, 252, 264, 292**
Abdomen **4, 19, 29, 42, 53, 68, 78, 87, 99, 106, 110, 124, 145, 151, 159, 173, 185, 204, 211, 226, 230, 231, 232, 237, 242, 253, 255, 256, 258, 265, 266, 269, 270, 274, 275, 284, 286, 288, 289, 292, 302, 307, 308, 317, 331**	*Abdomen* 1, 7, 13, 14, 16, 18, 19, 21, 24, 25, 26, 31, 33, 36, 42, 49, 50, **53**, 56, 64, 74, 76, 77, 78, 84, 87, 89, 90, 93, 94, 102, 113, 115, 116, 117, 121, 122, 124, 126, 129, 138, 140, 141, 142, 151, 155, 156, 158, 159, 163, 166, 167, 168, 175, 176, 178, 179, 182, 183, 188, 189, 192, 193, 195, 196, 200, 202, 203, 208, 211, 212, 215, 219, 220, 221, 222, 223, 224, 225, 226, 230, 233, 234, 235, 236, 240, 242, 243, 248, 249, 250, 254, 255, 256, 266, 271, 272, 274, 275, 276, 280, 282, 283, 285, 288, 289, 290, 292, 295, 297, 302, 304, 305, 307, 308, 310, 312, 316, 317, 319, 322, 328	*Abdomen* **7, 31, 33, 35, 36, 48, 50, 53, 68, 77, 94, 103, 105, 110, 116, 117, 121, 135, 138, 140, 142, 151, 152, 155, 156, 178, 179, 189, 196, 200, 211, 218, 219, 220, 221, 222, 224, 234, 236, 237, 250, 255, 258, 269, 275, 277, 280, 284, 288, 289, 295, 308, 319, 322**
Trunk **53, 68, 85, 136, 151?, 168, 218, 237, 258, 269, 287, 289, 296, 307, 311, 313, 317, 327**	*Trunk* 5, 6, 7, 8, 11, 13, 17, 34, 44, 45, 53, 76, 80, 95, 103, 107, 109, 111, 136, 139, 148, 160, 164, 166, 168, 171, 172, 178, 194, 214, 217, 223, 244, 245, 247, 250, 253, 274, 275, 293, 303, 314, 333	*Trunk* 13, 17, 26, 29, 30, 32, 34, 35, **37, 47**, 58, 59, 72, 82, 83, 94, 95, **96**, 101, 103, 104, 121, 128, 129, 132, 134, 139, 154, 164, 167, 168, 169, 170, 171, 172, 176, 178, 180, 192, 193, 194, 199, 207, 208, 213, **230**, 233, 234, 236, 241, 250, 253, 255, 260, 264, 275, 279, 281, 287, 297, 303, 304, 308, 309, 310, 311, **313**, 314, 332, 333, 335, 336
Extremities **16**, 52, 60, **148, 257, 259, 262, 273, 296, 335**	*Extremities* 24, 40, 57, 111, 112, 130, 131, 141, 144, 150, 160, 171, 187, 189, 191, 205, 206, 214, 216, 221, 227, 228, 229, 239, 252, 259, 264, 266, 273, 284, 288, 293, 294, 306, 320, 321	*Extremities* 9, 15, 23, 51, 75, 98, 108, **112**, 118, 120, 129, 130, 141, 147, **153**, 174, 181, 191, 198, 205, 209, 210, 216, 221, 223, 238, 239, 255, **256**, 263, 264, 274, 294, 321
General or Unclassified or Affecting All or Many Parts of the Body	*General or Unclassified or Affecting All or Many Parts of the Body* 62, 81, 97, 100, 125, 162, 249, 292	*General or Unclassified or Affecting All or Many Parts of the Body* 8, 18, 20, 49, 76, 96, 123, 161, 168, 233, 241, 250, 264, 274, 287, 304, 309, 330

The Educational Factor in Placing the Diagnoses on the Chart

The person who uses this chart should be willing to admit that a straight line has no width and may extend to infinity at either or both ends. But he must also admit that he can practically make a straight line a foot long and the width of a pencil mark. He can be more sure that the postulated straight line has no width than he can of the width of the pencil mark. Yet both are real to him.

Thus in filling out the chart, he may be sure that the postulated distinctions are correct, and equally sure of his inability to accurately place each diagnosis in the appropriate squares. However, the inaccuracy in most cases will not be his fault, but that of present-day medical science. It is well enough to entitle one space "head" and another "neck," but more difficult to decide in which the pharynx or parotid belongs.

In the case of a cystic cervix, it is hard to make up one's mind whether to class it as a "new growth" or a "chronic inflammatory" condition. The decision would depend on the degree of knowledge we possessed about the origin of cystic disease of the cervix, or of the opinion of the person making the classification. Personally, I consider it usually "chronic inflammatory." However, all knowledge is subject to the same restrictions of our lack of power to separate the finite from the infinite, but that we can to some extent is certain.

It is on this general principle that the subdivisions of both the anatomic and pathologic conditions have been thought out. Ordinary methods of classification have been made by names, and the names have been subdivided. Unfortunately the names of symptoms, pathologic conditions, and anatomic regions—three different things —have been subdivided as if they were one thing. True subdivisions should divide a homogeneous thing. Separation is a different thing from division. Two kinds of fluid may be mixed in a bowl. We may divide the whole fluid into halves, but each half will contain the same proportion of each ingredient of the mixture. True separation would withdraw one kind of fluid from the mixture and leave the other. We apply this method to the previous methods of classification. Others have gone on making subdivisions of mixtures, whereas we separate the different ingredients. When wood and iron are mixed, we do not divide the two together, but we separate our wood from iron. So the subdivisions in our chart and tables would more properly be called subseparations.

We are always separating each ingredient from the mixture as fast as science will permit us; and there will always be left a group of conditions which are unclassified anatomically or pathologically, in the lower right-hand corner of the chart. We think that all the other rectangular spaces in the chart represent the separations that science has already attempted to make from this chaotic group of "unclassified unclassified conditions." But the same principle that

applies to the whole chart applies to each individual separate rectangle. Each rectangle will always be capable of further subdivision, and it will always have a lower right-hand corner in which the "unclassified of unclassified conditions," under its own heading, should fall. The whole is a Variable increasing toward its Limit, and each subdivision is another Variable. Like all human experience, the chart is full of mistakes and errors, but the mistakes may always be remedied or at least acknowledged.

In descriptive science, to name a condition, a division, a group, or any sort of subdivision, appears to be a natural process of human thought. We name the condition, so that for the time being we can tell one another about it; but another group of men in another place may name the same thing or condition by a different name. Hence the growth of languages, the confusion of the tongues of Babel, and the oft-quoted question, "What's in a name?"

As a matter of fact, there are many pathologic conditions which have many names, and others which have no names. This is particularly so when there are combinations of different conditions. A method such as the one described permits the reader to use this classification as an index to find even these many named or unnamed conditions which in an ordinary tabulation would be relegated to miscellaneous conditions. For example, Case 221 is so unusual a condition, that it has no name. It was a buckling of the edge of the liver due to ptosis of the liver, while the edge was held high by an epigastric scar. Even though there is no name to use, we unhesitatingly place it as a traumatic condition of the digestive glands (liver).

Is the attempt to do this apparently tedious work worth while?

The stupendous task of making a science of clinical medicine is to apply all the other sciences to neutralizing all the noxious effects which heredity and environment may thrust upon the individual by all sorts of detailed combinations of diseases in any portion or many portions of the body. And the science of preventive medicine implies even a further knowledge—so thorough an understanding of disease and anatomy, that the two can be prevented from combining. When this millennium can be attained, the whole chart will be separated and subseparated to an infinite degree—*except a theoretic space in the lower right-hand corner.*

We may deny the possibility of ever reaching perfect knowledge, but we cannot deny that we have begun to try to do so. Human knowledge *has* begun in the upper left-hand corner. We *have* already described and formulated much of our environment. We can already apply our knowledge to curing and preventing some noxious influences. Is not the beginning of the chart quite as wonderful as the end is likely to be? To my mind, the effort to fill out the chart is a pleasurable one—only annoyed by my errors of inaccuracy. I feel that while I stick by what I know to be true, correct, and accurate, I am in accord with the evolution of humanity, and am

contented. But when haste, fatigue, inaccuracy, laziness, or ambition hurry me into error, I get out of tune, and must penitently go back for the false notes. And a real error—one done with intent to deceive —the sacrifice of a truth, no matter how good the cause—would strike a discord in the harmony of the universe. It would ring loudest in my own ears, but my neighbors might suffer too.

There are many doubtful conditions, some of which are still unclassified, because we do not know their pathology accurately, even though they are familiar enough as clinical entities. The following are some of the conditions which have caused me trouble, and on which I have established precedents for myself which may help others. My doubt has been due to my imperfect knowledge.

Inguinal and femoral hernia can be anatomically defined under groin, but there is doubt of their pathologic position. They are sometimes congenital and sometimes traumatic conditions, and sometimes actually inflamed or strangulated. In the present state of my pathologic knowledge, I prefer to class them as "traumatic," unless they are obviously "congenital," *i. e.,* the sac continuous with the tunica vaginalis.

A ventral hernia following appendectomy or other abdominal operation is clearly "traumatic." In the chart previously published I classified such cases when following appendectomy as "traumatic of the appendix," but I think it is less confusing to consider them as "traumatic of the unclassified abdomen," and shall do so in the future.

Shall cystocele be classified as a lesion of the female genitals or of the urinary organs? It is clearly a "traumatic condition of both genitals and urinary organs," but primarily of the former. I therefore classify it as "traumatic of the female genitals"; if cystitis were superimposed, I should classify it also as "acute or chronic inflammatory of the urinary organs."

Should anteflexion and retroversion be classed under "uterus and adnexa" (abdominal), or under "female genitals" (not abdominal)? I prefer to class malpositions of the uterus under "female genitals," because in my opinion they are not truly abdominal conditions. As to their pathology I am also somewhat uncertain. They certainly are not new growths or inflammatory conditions, nor am I satisfied that they are clearly congenital or clearly traumatic. I therefore leave them in the "unclassified" division. Scientific knowledge has not yet shown me whether they are congenital or traumatic.

Spasms, such as pylorospasm and cardiospasm, are put under the "unclassified" of their respective anatomic regions. Spasms, hypertrophies, atrophies, dilatations, and functional disturbances of organs not known to be caused by definite pathologic conditions, I place under unclassified of the special anatomic regions. These are not clearly pathologic conditions, and yet they are more than symptoms such as epistaxis, hematemesis, jaundice, intestinal obstruction, ascites, edema of legs.

The question of symptoms is a puzzling one. Shall we consider trifacial neuralgia, epilepsy, diabetes, as true pathologic conditions? As our chart subdivides only pathologic and anatomic conditions, we do not wish to use it for symptoms. If trifacial neuralgia is a pain in the fifth nerve, it is merely a symptom, and we do not want to use it; but if it is a "chronic inflammatory" condition of the nerve, as I believe it is, it is a pathologic condition, and we want to include it. Modern medicine is continually fighting a battle to teach people the difference between treating symptoms and pathologic conditions.

Yet the most learned of us scarcely know, ourselves. Which is epilepsy? To my mind it is a symptom, yet it appears in most lists of pathologic conditions. I have classified it as "unclassified of the brain," because I believe it is in most cases due to a pathologic condition of the brain. In other words, being in doubt, I have accepted it—perhaps I am wrong; any time that I am convinced of it I can change it. If a case proves to be due to a glioma, it could be put under "benign or malignant" conditions, according to our view of the pathogenicity of glioma.

Is diabetes a symptom or a pathologic condition? A person may have sugar in the urine without diabetes, and *vice versa*. Yet to most of us the symptom, sugar in the urine, means diabetes, and *vice versa*. I shall therefore classify diabetes (sugar in the urine) as an "unclassified condition of the urinary organs." If in a given case diabetes were proved due to cancer of the pancreas, I should classify it under "malignant of the pancreas." But science has not yet taught us enough about the pathology of diabetes to classify all cases.

The use of this chart is a good exercise in clear thinking and in teaching the fundamentals of medical knowledge to students.

Personally, I want it as an index to my cases, so that I can tell whether I have a staff of colleagues and assistants who are competent to prevent pathologic conditions from causing symptoms.

Certain conditions may be traumatic in origin, and yet of importance, because of the chronic inflammation they cause. A subacromial bursitis is usually of traumatic origin, yet the trauma may be trivial and the chronic inflammation excessive. I think it is best to classify such conditions only as "chronic inflammatory," and yet I see no objection to listing them as both. The chart should not be unnecessarily duplicated, but certainly, when used as an index, such duplication is useful; and when used for rough statistics, such cases should be included under "trauma of the supraspinatus tendon," as well as under "chronic inflammation of the bursa" which the rupture causes. In the previous report I should not have included them both under bursitis, but should have had the traumatic part apply to the supraspinatus tendon, and included it under "traumatic" of the unclassified extremities. That is, rupture of the supraspinatus tendon is one pathologic entity, and subacromial bursitis caused by it is another. One may occur without the other. Yet they usually occur

together, so statistically they should each count in adding one to the lists of chronic inflammatory conditions and traumatic conditions, respectively. But they occur in only one patient, person, or case, and cannot appear as two in statistics relating to persons, patients, cases, or cures.

It must never be forgotten that these charts and tables are only a convenient means for different ends—that is: (1) indices, (2) general or detailed statistics; (3) efficiency, and (4) scientific studies. Multiple pathologic or anatomic lesions of the same region, or different pathologic or anatomic varieties of lesions which occur in the same case, must be arranged, subtracted, or added, according to the purpose for which the study is made, by verifying all details from the original records. I merely claim that these charts and tables are a simpler, surer, cheaper, and more scientific and accurate method than the usual card catalogues or lists of names, which are mere jumbled collections of anatomic, regional, functional, systemic, and arbitrary conditions of a mixed nature.

Hydrocele I consider a "chronic inflammatory condition of the male genitals," unless it is clearly congenital.

Fistulæ are classed as "traumatic conditions" of the organ concerned.

Abdominal adhesions I class as "chronic inflammatory" or "congenital," according to my opinion,—lacking exact knowledge.

Intestinal obstruction. Is intestinal obstruction a symptom or a pathologic condition? Cases 105 and 155 are examples. In Case 105 the obstruction was due to a intussusception caused by a Meckel's diverticulum. Here was a congenital condition leading to a traumatic condition which produced the pathologic condition of intestinal obstruction. In Case 155 the obstruction was due to volvulus of a congenitally abnormal cecum,—the volvulus might be considered "traumatic," or even "inflammatory," because the adhesion of the appendix to the left costal border was an important factor in permitting the volvulus to occur. Cases 53, 68, 110, 237, 258, 269 had cancer of the intestine or rectum as the primary cause. It would seem hardly fair to exclude an important surgical condition such as intestinal obstruction from a pathologic classification on the ground that it is merely a symptom, and I have therefore placed these cases under "unclassified conditions of the intestine," and also placed each under the appropriate heading for its primary cause or causes.

Extrauterine pregnancy I place as a "traumatic condition of the uterus and adnexa."

Banti's disease, splenic anemia, Hodgkin's disease, etc., I consider as "unclassified of unclassified," unless some local condition is the chief manifestation, in which case I add it also under the local region as "unclassified" (for example, an enlarged spleen).

A septic pilonidal sinus is practically an "acute inflammatory condition of the lower portion of the back," although it is primarily a congenital lesion. I class it under both.

Hemorrhoids, varicose veins, pelvic phleboliths, variocele, etc., are not new growths, inflammatory, congenital, or strictly traumatic conditions. I consider them as "unclassified."

Neurasthenia I class as "unclassified of unclassified," although I think it is really a symptom of visceral anomalies.

Insufficiency (uterine), atony (of stomach), I place under "unclassified" of the organ concerned.

Hydronephrosis I place under "unclassified of the urinary organs," and add the pathologic cause, if known (as aberrent vessel), under its appropriate heading.

Ptosis, Lane's kink, Jackson's veil, are unclassified conditions of the "unclassified abdomen." I do not feel at all sure whether they are "congenital" or "traumatic."

Concretions, such as gallstones, I class as "chronic inflammatory" conditions of the containing organ.

Organic heart disease is considered "chronic inflammatory," unless surely syphilitic.

Prolapsed ovaries are considered "unclassified of the uterus and adnexa."

Perinephritic abscess I class as "acute inflammatory of the urinary organs," as its origin is usually from the kidney. But if it were known to be from another cause, I should classify it accordingly.

Cystic disease of the cervix is classed under "inflammatory conditions."

Prolapsed uterus, lacerations of the cervix and perineum, are classed as "traumatic of the female genitals."

The border line between uterine conditions classed as "uterus and adnexa" (abdominal), and uterine conditions to be classed as "female genitals" (extra-abdominal), is necessarily rather indefinite.

Intrauterine tumors (polyps), hydramnios, pregnancy and its complications, appear under "female genitals"; while fibroids and other tumors in the uterine wall appear as "uterus and adnexa," since they are practically abdominal. Cancer of the cervix is under "female genitals," and when in the body of the uterus, as "uterus and adnexa," unless it evidently arose in the cervix (when in doubt, it may be classed under both headings).

Floating kidney is classed as a "congenital condition of the urinary organs." It would be a matter of opinion as to whether to class this as "traumatic" or "congenital" or "unclassified." If science had yet taught us to be exact, we might place this condition under the right heading.

Diverticuli of the intestine or bladder are also in my opinion usually "congenital," although they are considered by many writers to be traumatic.

Mixed tumors of the parotid gland. There are certain new growths which science has not yet been able to decide to class as benign or malignant. In fact, some tumors may be potentially

benign or malignant, and we cannot by histologic examination tell the difference. I have classed mixed tumors of the parotid as "benign," although pathologists have called them by every conceivable pathologic term, including cancer and sarcoma. It is possible that the End Result Reports of my own cases will in time cause me to change my mind.

On the chart which I issued before, I used the symbol -M to indicate multiple conditions. I continue to do this for my personal convenience, but I should not recommend it for use on a standard chart to be adopted by all hospitals, because it causes more confusion than is justified by the additional information for which it acts as an index.

In these tables all pathologic diagnoses mentioned in the text have been classified, whether operated upon at this or at some other institution, or not operated on at all. If any great Medical Society should adopt a standard chart or classification, they might rule that no case should be included unless an attempt were made to remove or relieve the symptoms caused by each pathologic condition. They would limit the scope of the index just as one limits the scope of the index in a book.

In certain cases where the disease involves two distinct organs or divisions of one organ, it has seemed to me best to place them under both headings. For instance, cases of cancer at the recto-sigmoidal junction will be found both under cancer of the rectum and under cancer of the intestine.

It is timely to repeat here that the chart should never be used as a final statement; it is merely a convenient index to refer one to the detailed records of groups of cases. An important statement should be made only after examination of the detailed record; but for many practical purposes, the rough numbers obtained by the addition of the various columns will be sufficiently accurate for use. For instance, the total of our malignant column means that we have seen at least 94 malignant conditions of different organs, and by crossing out duplicate numbers we find that these occurred in only 56 patients.

If the reader will try a few concrete examples from his own cases, he will soon see the educational value of these charts. He will find how indefinite his own pathologic knowledge is; how frequently he has to deal with several pathologic conditions in his patients; how often he runs across definite pathologic conditions which have no definite name, and *vice versa;* how the effort to define raises interesting pathologic problems and questions; and above all, how hopeful is the fact that we can *now* fill out part of the chart, even if we have infinite new fields to conquer in the infinite number of subdivisions which may be made.

It is a constant pleasure to me to compare my chart with one made from the Report of the Hospital of the Harvard Medical School of China, at Shanghai, which Dr. Carl Hedbloom has so

carefully edited. With that End Result Report at the antipodes, I feel encouraged to think that here and there (between Boston and China—both ways) others may see my meaning.

Working for This Generation or for The Next

No matter what pessimists may say about human nature, there is certainly a little tendency in every human being to wish to be of service. This fact must be acknowledged, no matter what motives are assigned to the individual instance,—whether the example be the statesman devoted to his country, the football player to his team, the scientist to the demonstration of his theory, the old maid to her sentimental charity, or the reformer to ideals impracticable until a generation or two hence. All are selfish and become unselfish. The statesman sacrifices himself for *his* policy for *his* country, and the reformer for what *he* wishes the next generation to be or to do. So it is with all forms of service or the tendency in humanity for the individual to wish to be of service for the general good. In other words, this is the hereditary social instinct of the individual, and it seeks satisfaction as surely as the bodily functions. We must acknowledge it in order to be normal.

Selfishness and unselfishness differ merely in the time-return of the reward.

The man whom some call selfish, demands immediate reward for his labor; he works for this generation and is paid by it. The man who may be called unselfish, works for the next generation, and necessarily cannot be paid by it,—except in honor, which is often misplaced. The man who works for this generation is the practical, successful, beloved person who backs up his friends and fights their enemies. The man who works for the next generation is the dreaming, unsuccessful, often embittered person, who fights the faults in his friends and backs up the virtues of their enemies.

Some persons honor as unselfish the man with tact enough to make no enemies, and who values the love of this generation more than the honor of the next. Others regard that man as unselfish who seeks truth so sternly, that he will not permit a lie which will damage the next generation, to exist, even among his friends in this generation.

What is the point of all this in regard to hospital work? Let us transform the question:

Who is to pay the clinical investigator who devotes his energy to studying the scientific side of medicine and surgery, and necessarily must neglect his private practice? This generation is perfectly ready to pay for his direct clinical care, which is worth but little more than that of any of his colleagues; but the next generation will not pay him for the formulation of some clinical law or principle which may be of infinite service to all mankind. It will be the *practical* man of the next generation who will reap his reward,—just as today surgeons all over this country are receiving high fees

for the simple operation of appendectomy which Reginald Fitz, Alfred Worcester, John Homans, and other pioneers made possible.

The fact is, that it takes about a generation for a clinical discovery to become general knowledge. For instance, Moynihan's demonstration of the frequency of duodenal ulcer, and of its ready cure by gastroenterostomy, has taken twenty years to be diffused into general use. With minor discoveries pushed with less energy by less able apostles, it takes much longer. Some are even buried for years before the world has the use of them. The truth seeker for the next generation must constantly see his less thoughtful colleagues rewarded for practical service to this generation, and must face the traditional fate of the prophet, and live without honor in his own country.

What can the hospitals and End Result System do to mitigate this evil?

Endowed institutions may be a bridge between this generation and the next. By the End Result System they may defend the prophets, and advertise their new discoveries and improved methods to the world. It is the lack of advertisement which prevents the spread of new clinical discoveries, for advertisement in the true sense means the diffusion of knowledge of facts.

I look forward to the day when endowed institutions, by the publication of their clinical results, will perform a part of their duty to their communities in letting people know what physicians and surgeons have proved themselves competent to cure or relieve every pathologic condition, and just which surgeons and physicians are devoting themselves to the study of each incurable condition.

The End Result System will give Trustees the means to do this, and it will establish definite Standards, so that each pioneer can demonstrate that his added knowledge actually enables him to relieve cases which others have not relieved. Trustees can say to the man who has original ability: "Here is a class of cases which has hitherto been unsatisfactory in its results. Study the pathology and natural history of this disease. Devise new methods of treatment, and if you have conviction that the knowledge you have acquired will enable you to demonstrate that you can relieve our patients with this condition, you may take charge of them. But be sure that the next series of cases clearly excels the standard we already have. If it does, we want you to continue to treat such cases for us; and we will let our Community and the Scientific World know it, through our Hospital Report."

Most prophets and pioneers are careless about their immediate rewards. This system would thrust the reward even on a modest prophet. It would also make it difficult for the "practical man" to absorb it. *And it would make it worth while for "practial" men to be prophets!*

The Endowed Institution would therefore bridge the generations, reward prophets in this instead of the next generation, and con-

stantly serve the public with discoveries of this generation, instead of with the Fads of this and the Errors of the last.

The Trustees of Endowed Institutions are usually appointed because they themselves are practical successes in this generation. Their habits of life and of thought are for the praise, love, and reward of this generation. They are in the habit, in their businesses, of looking toward success, even at the expense of a little truth now and then. When they handle an Endowed Institution, it is difficult for them to realize that they are working for the next generation, when the little truths of this generation will have grown large and the unearned success of this will hold the next generation back.

Examples of Endowed Institutions which permit graft, nepotism, favoritism, expediency, vainglory, hypocrisy, and evasion are far worse than these traits seen in aggressive business, where the temptation is manifest. One can pardon evasion in social life, in business, in politics, in fun, in war, in love; but in an Endowed Institution there seems to be no excuse for it. If such an institution cannot *spend* its money honestly, what an example it must set to the next generation in teaching the methods to *make* money!

The excuse for the individual to sacrifice truth to expediency is the struggle for existence. But an Endowed Institution has no such excuse. Better that it perish and let the Truth survive, than try to maintain its own existence by using a lie. The lie may have been developed in the individual by heredity, but the Endowed Institution is a new being, with but a few hundred years of ancestry. It is the expression of the hope of those individuals who have lied and accumulated, that their money may be used to prevent the need for lies in the struggles of future generations.

How it must annoy the dead benefactors (whether good or bad) of our institutions to see their Trustees sacrifice any tiny bit of Eternal Truth for temporary reputation in the Present Generation! From their timeless point of view, how clear it must seem that Truth Evaded means the postponement of its use for human happiness.

The Ownership of Hospital Cases

The Staffs in most Charitable Hospitals consider that "the use of the material" is their prerogative.

A Junior member who cares to study, investigate, or report on the cases that a Staff Surgeon has operated on, is supposed to be asking a favor. One often sees the expression, "I am indebted to Dr. So-and-So for the privilege of studying these cases." Such phrases should be reversed,—"Old Dr. So-and-So is, or should be, very grateful to young Dr. So-and-So for studying these cases." It is a privilege to have them studied, not to study them.

And did the cases belong to old Dr. So-and-So, anyhow? Do the cases belong to the Chief of Service, to the Trustees, to the Hospital, to themselves, or to the Community?

My idea is that the Hospital is a place for mutual help. The Patient, the Student, the Professor, the Chief of Service, the Trustee, the Hospital, the Community, and World-wide Medical Science —each are part owners of "the case." We must all be willing to learn from, to teach from, to study, to organize to aid, to be trusted by, to contribute to, to record, and to analyze each "case" and all "cases." The State of Massachusetts has an interest in the cases in our Charitable Hospitals; she contributes to them, and statistics and scientific observations which may be of future value to her taxpayers should be returned to her. Medical Science has an interest in every case, especially those relieved, for she has instructed every Doctor, Student, or Nurse who helped care for the Patient. The "case" owes her everything it can give in return. In the same way the "case" owes to the Student what *the Patient* has received from the Professor, the Chief Surgeon, or Physician.

Who, then, owns the case? Why should the Investigator, who studies the case so as to formulate some general principle which may help other cases, thank the Chief or the Professor or the Trustee? Is the man who is capable of logical reasoning, and at the same time *willing* to record and analyze cases, easier to find than a Trustee, a Professor, or a Student? The main difference is, that the man who records, analyzes, and formulates general principles usually receives his recompense after he is dead. Few care for this reward.

At *this* hospital, every patient is willing to have his or her case analyzed; and I, as Chief of Service, shall be grateful to any young man who has the zeal and ability to analyze them. Every operation which is performed here is an experiment, but as it is publicly recorded under his own name by each experimenter, it is a justifiable experiment. In this it differs from the experiments in many Charitable Hospitals, where the experimenters do not study, record, and analyze their cases. In such instances the experiments are performed for the benefit of the performer, who becomes a good operator, a popular surgeon, a chief of service, and perhaps allows some *investigator* the privilege of studying his carelessly conducted experiments.

Trustees should realize that "the material," which means the patients, is of value to the "operator," because each operation, whether successful or unsuccessful for the patient, improves the technique of the operator. They should take the part of the thoughtful (even if clumsy) operator, who studies pathologic conditions rather than grace in technique. Such a man needs "material" to become a good operator; but no amount of "material" will make the good operator a good surgeon, unless he takes proportionate time to study pathologic conditions and follows his cases, to know whether his operations were appropriate as well as beautiful.

Plenty of "material" makes a good operator and a "successful" surgeon, but "successful" surgeons may not be successful in their

results. It is possible by the End Result System to demonstrate this. The "material" should be used to make good operators out of clumsy but good surgeons, if the "good operators" will not use it to become good surgeons. Surgery is more mental than mechanical.

Let a surgeon in question have the choice of the material, with instructions to operate only on those cases which he can bring to a successful issue, and refer all others to the Chief of Service. If his pathologic knowledge, diagnostic ability, skill, care, and judgment cannot be tested in this way, then it is useless to keep baseball averages.

Would the patients be worse off? Would you prefer to be assigned to this surgeon, under these conditions; or, as you would be at present, merely by the ward?

Rare Cases

Among the 337 cases here recorded are the following unique, rare, or unusually interesting cases:

Case 8. Renal colic as the first symptom of Banti's disease.
Case 24. Chronic pneumococcus infection, with multiple arthritis and membranous pneumococcus gastritis.
Case 33. Distention of the common bile duct, which contained 30 oz. Recovery.
Case 34. A pilonidal(?) sinus on the *anterior* margin of the rectum.
Case 42. Primary cancer of the Fallopian tube.
Case 53. Tuberculous strictures of the intestine, followed later by cancerous strictures of the intestine.
Case 86. Chronic bronchiectasis causing(?) acute brain abscess.
Case 105. Intussusception—Meckel's diverticulum.
Case 110. Recovery from cancer which involved 3 separate portions of the intestine and abdominal wall.
Case 114. Microscopic cancer(?) in a fibrous breast.
Case 142. Salivary calculus.
Case 155. Volvulus of the cecum, with appendix attached to the *left* costal margin.
Case 188. Acute pancreatitis(?).
Case 197. Cystic lymphoma of neck.
Case 221. Buckling of the edge of the liver.
Case 223. Acute hemorrhagic cystitis (colon bacillus), without trauma, pain, or instrumentation. Complete recovery.
Case 224. Retroperitoneal abscess, simulating malignant disease of the pancreas.
Case 229. Extreme case of elephantiasis of the legs, with recovery.
Cases 230, 232. Operable(?) cancer of the head of the pancreas.
Case 233. Congenital malformation of the spine, etc.
Case 237. Multiple adenomata of the intestine, with malignant change in one and metastases to both ovaries.
Case 244. Cold abscess of the back, containing bone and staphylococcus aureus. No known origin.
Case 247. Perinephritis without suppuration.
Case 250. Torsion of appendices epiploicæ.
Case 252. Adamantinoma of the jaw.
Case 257. Osteochondroma involving upper half of humerus, excised without nerve or muscle injury.
Case 259. Calcified lipoma arborescens of knee.

Case 270. Colloid carcinoma of the ovary. Recovery in spite of peritoneal involvement.
Case 279. Recovery after transfusion between Groups 2 and 4.
Case 284. Adenomyoma(?) in old appendix scar, without primary uterine tumor.
Case 295. Torsion of omentum simulating acute appendicitis.
Case 304. Dilatation of seminal vesicle without infection.
Case 308. Psammo-carcinoma of ovary, with cancerous peritonitis. Inoperable. Apparent recovery from radium applications.
Case 314. Intravesical cyst of ureter. Bacteriuria followed by formation of renal stone years after relief of obstruction.
Case 318. Chronic abscess of tongue simulating cancer.
Case 321. Complete rupture of supraspinatus tendon. (Common, but not widely known or operated on.)

These cases are so exceptional, that it would be of almost vital interest to any patient having any one of them to learn how a similar case was treated, and how it resulted. So it would be for the family physician of any patient who had any one of these diseases.

Probably most family physicians and many surgeons do not even know the names of many of these conditions, and it is very unlikely that any one physician knows the names, symptoms, and usual outcome of all of them. He would not even know where to look for them in a medical library.

Now if over 10 per cent of my cases have been these rare conditions, must there not be as large a proportion in our Charitable Hospitals? Would their outcome not be of vital interest to the patients who have similar ones, and to the physicians who have charge of them? Must they not occur in about the same ratio in private practice, too? Your own case, reader, may be one of them. Will you select the doctor to treat it, because he is assigned to your ward, because he is old, because he is popular, or because he is a friend or relative?

Do you realize that the Seniority System in our hospitals practically prohibits any energetic young man (without a private fortune) from taking the time to study and analyze such cases, and that it also prohibits the man with a private fortune from operating on such cases, even if he does study and analyze them, and is ready to prove he can help them? Every day he puts on such study, puts him farther behind in private practice and no farther ahead at the hospital.

At this hospital, I propose to keep track of the work of every young doctor in this community; and if he writes a good paper on the analysis of any rare group of cases, and thus proves that he is conversant with their pathology and the natural history of their usual progress, I shall call him in consultation on future similar cases.

Routine Cases

The bulk of the cases in this Report are *Routine Cases*—Hernias, Uterine Fibroids, Cancers and Cysts of the Breast, Appendicitis cases, etc. The science of surgery developed by the last

generation has enabled us to treat such cases satisfactorily. It is for such cases that the *brilliant operators* are charging high prices. They are reaping the harvest that was sown by the student pioneers of the last generation. These pioneers did their service for mankind, not for the less studious members of the surgical profession. They hoped that the price of operations, which they studied to make safe and easy, would go down, so that mankind, not the surgeons of the day, would benefit.

The Seniority System at our hospitals keeps the price of routine operations up, so that the community does not get the legacy the pioneers left them in their wills. And the Seniority System prevents the young pioneers of today from getting a fair share of their own harvest.

At this hospital we have done, and can do, routine operations just as successfully as the brilliant operators, and we only ask payment for our actual work. Why pay a high price for speed of production of an unstandardized article, when you can obtain at a reasonable price a guaranteed standard article?

Standards

The exponents of scientific management constantly tell us that standards are necessary, if we wish to attain efficiency.

Is it possible to standardize the treatment of disease, or the work of hospitals, or the work of individual members of hospital staffs? Is it possible to standardize knowledge, skill, judgment, and diagnosis, or curable and incurable diseases, calamities, and mortality? Is it possible that we can have standards for cases like appendicitis, cleft palate, pneumonia, hernia, and fibroids of the uterus?

It is the opinion of the writer that such standards can be established, and one of the aims of this hospital is to establish standards; even with the few cases we have already had, we can in a measure *set up* standards, because no such standards of *consecutive* operations have heretofore been offered. It is not customary in hospital work to set standards; there is nothing to go by, to determine whether the work of a given hospital is efficient or not. Other hospitals have not yet recognized that if they wish to send practitioners into the community who will treat only the cases they are competent to treat, they must begin by example in the hospitals themselves. For instance, the standard of an ideal local hospital would be to accept no cases which it cannot cure or relieve, unless that hospital is an investigating and teaching hospital which honors the members of its staff, because of their demonstrated ability to treat the difficult cases which are discarded by minor hospitals. This hospital, for instance, freely acknowledges and admits that the surgeons appointed by the trustees of the large hospitals in Boston should be the best—so why should it accept for treatment the difficult or dangerous cases? We can always obtain the services of these staff surgeons for either our rich cases or our poor cases. They

may treat the poor cases at their hospitals, and the rich ones at their homes or in private hospitals. *We have no obligation to accept cases which we cannot diagnose, or those which we are not qualified to treat.* Is there any suburban hospital which makes an effort to establish such a standard as this? Is there any other hospital which is willing to admit that it is second class, and sets its price according to its standard rather than according to the wealth of the patient?

Is there a standard of judgment? (See page 99.) Our standard of judgment is demonstrated in so far as we succeed in not attempting anything which we cannot bring to a successful issue. Is it not possible to put the same test into a large hospital by assigning a ward to a junior surgeon, with instructions to refer all cases which he cannot relieve to another ward, under the charge of a senior surgeon whose judgment had been demonstrated by years of a similar test? The junior surgeon who was successful in doing this would qualify as having good judgment.

Is there a standard of skill? (See page 98.) Our standard of skill can be measured by the number of cases in which it has been proved to be lacking, compared with the number and character of cases in which it has been successful. Is it not possible to apply the same test to a junior surgeon in a large hospital?

Are there standards of care? Is it not possible in other hospitals to see whether our standards of never having had a favorable result of any of our cases prevented by sepsis cannot be realized? Would our standards not have been even higher, if all our cases had also been free from stitch abscess, hematoma, etc.?

Are there standards of curable and incurable conditions? Although this matter is always linked closely with judgment, and subject to qualification, we can establish cases of fibroid tumors of the uterus as a condition in every case of which the result should be successful; and we may set against it cases of cancer of the liver (of which there is no authentic cure reported).

It requires two different types of men to treat curable and incurable conditions. Most men can be taught to cure curable conditions, but very few can teach the world how to cure incurable conditions. At present our hospitals put no premium on the cure of rare or difficult cases, even if an individual is found courageous enough to study, investigate, experiment, and eventually teach the world how to relieve such conditions, which have been supposed to be obstinate or incurable.

Are standards of results possible? Certainly we may say that interval appendectomy and operations for simple hernia and fibroids of the uterus should have no mortality or complications; but in the cases of cancer of the pancreas, we must acknowledge that science has not yet taught us to avoid a large percentage of mortality. Is it not possible to compare the percentage of success in cases of these conditions in different hospitals, and to establish a minimum stand-

ard, so that a hospital whose mortality is less may feel proud, and a hospital whose mortality is greater may learn from the experience of others?

For the man who practices surgery, there are two kinds of mortality—chance and intentional.

Chance mortality is the kind which occurs unexpectedly, and which no amount of foresight can prevent. It is caused by unanticipated Calamities or Catastrophes. Death from pulmonary embolism is a good example. For the junior surgeon who is given a ward and told that he must exhibit his judgment by the selection of cases which he can bring to a successful issue, there is also a danger of such calamities. Is it not possible to determine what this percentage of danger is, just as easily as it is to compute a fire risk? Mine, at this hospital, is 1—260.

Intentional mortality is incurred by the chief surgeon when he attempts cases in which the condition is acknowledged to be grave. It is speculative—like gambling against known chances in a game in which skill, judgment, and luck all count. Our intentional mortality is shown on page 105.

Is there a standard of mortality from anæsthesia? With modern methods there should be no anæsthetic deaths, unless the attempt at anæsthesia is made by an expert anæsthetist. It is possible to give anæsthetists, just as it is surgeons, a chance to select their cases, and to bring the burden of the dangerous cases on those who have in the past proved, by their judgment and skill, their ability or right to receive this honor.

At this hospital, by selection of cases for local, spinal, intrabuccal, and gas anæsthesia, we have had no anæsthetic mortality. When the cases have showed a considerable anæsthetic risk, we have relied on the services of Dr. Freeman Allen, Dr. N. N. Morse, and others; in uncomplicated cases we have taken the risk ourselves. But we believe that even when an expert anæsthetist is engaged, it only partially relieves the surgeon of his responsibility,—his selection of the anæsthetist is just as much a part of his duty as the selection of any other consultant. When he relies on that consultant's advice, and acts on it, he is no less responsible for the decision. To rely on bad judgment is in itself an error of judgment. As to our standards for individual operations, or for individual pathologic conditions, reference may be made to the table presenting combined index and statistics.

Finally, let us remember that the object of having standards is to be sure to raise them. The standards which we are establishing may be low ones, but we are making them to raise them. We offer them to other hospitals for comparison, not necessarily for emulation. It would be a pleasure to see them surpassed. The End Result System means the introduction of the Comparative Principle into Clinical Science, and it means the use of the Principles of Scientific Management in Hospital Organization.

If it is the object of this hospital to treat only cases which we can cure or relieve, what is to be our future relation to the Cancer Problem? We feel that in exploiting the End Result System, we have already done something toward it from the statistical side. If all the hospitals in this state had the End Result System, how easy the compilation of statistics would be. Reference to our Index table shows that of our cases the following have had this disease: 10, 38, 39, 41, 42, 46, 51, 53, 55, 68, 78, 79, 85, 96, 110, 114, 119, 133, 145, 146, 148, 149, 151, 173, 185, 186, 197, 204, 218, 223, 230, 231, 232, 237, 252, 253, 258, 261, 267, 268, 269, 270, 284, 291, 292, 296, 298, 308, 309, 326, 327, 331, 335, 337. Any one who is interested can determine from the abstracts of these cases any data he wishes for the particular purpose he has in mind, and he may have access to our detailed records for further facts in doubtful cases. If he is studying adamantinoma of the jaw or psammoma of the ovary, he can in a few minutes, by using the Index table, pick out our cases to add to his own. If he wishes to follow up the broader problem of the relative frequency of the disease in different organs, he can find it as readily. A record of the mortality, the relative morbidity, the duration of life after operation, month by month; variation in the histologic types; the record of the age, the sex, or any other item which we have observed, is as readily and rapidly obtained.

If every hospital in this Commonwealth had similar abstracts of its cases available, and as simply indexed, how accurately the statistician could compute his statistics, and how easily his opponent could use the same cases to confute his conclusions or to correct his errors.

But our chief, selfish interest in the cancer problem is to show that we can select those cases which we can relieve, and those which we must refer to better qualified surgeons, because the End Result would prove that our operation in such cases had done little or no good. We do not care to operate on cases of cancer which will not have a respite of at least a year after the operation. Is it possible to select such cases?

Hitherto we have not refused the chance of benefit from operation to any case that has come to us, except Cases 85, 268, and 327, which we considered absolutely hopeless. Cases 53, 55, 146, and 218 were referred to more skillful operators (Dr. C. A. Porter and Dr. D. F. Jones); and Cases 309 and 337 preferred the chances of radium treatment. *And we have not refused to admit any case which any other surgeon thought might be operable.* So, hitherto, we cannot be said to have selected our cases; but in the future we are going to try to do so.

In order that we may be guided in the right direction in the future, let us study the past: Were there any cases in which before the operation we would have given a bad prognosis, and in which the

result showed that we were wrong? Or were there cases apparently of good prognosis in which there was not a respite of at least a year?

Those of E. A. C.'s cases which died within a year were the following:

Case 10. Gangrenous, melanotic sarcoma of the cheek in a senile clergyman of 84. A purely palliative operation, with healing by first intention.
Cases 145, 173. Exploration for obviously incurable cancer of the stomach, in the hope of performing palliative gastroenterostomy.
Cases 230 and 232. Patients with long-standing, deep, painless jaundice and distended gall bladders.
Case 231. A case of large abdominal tumor with ascites, in which the diagnosis of ruptured papillomatous cyst of the ovary was reasonably clear.
Case 269. A cachectic, elderly woman whose history and physical examination clearly indicated inoperable cancer of the rectum, and that enterostomy would prolong her life only a few months.
Case 292. A man with digestive symptoms (blood pressure, 220), from whom I successfully removed the pyloric portion of the stomach for an indurated ulcer (possibly cancer), and who died within the year from endocarditis.

We think that there can be no question but that any experienced surgeon would have been glad to avoid any of these, except possibly the last. They were clearly palliative operations only. We believe that these cases answer the questions, and that the undoubted benefit received by the other cases proves that we can, with a very small margin of error, select in the future the cases which we can benefit.

We believe that we can best contribute to the cancer problem by not operating on cases so advanced, that we think they will die within a year.

If any such cases which we refuse to accept are relieved or cured by more skillful surgeons, by X-ray, by radium, by Christian Science, or by quackery, we shall most cheerfully place the credit where it is due. We invite you to send patients who plan to have such treatment to us, *merely to put them on authoritative record.*

Notice Case 308, which is an authentic example of the efficacy of radium in the treatment of an inoperable, diffuse abdominal cancer.

The various institutions which are now specializing on the treatment of cancer should publish annual End Result reports of all their cases, so as to let the medical public and the lay public know just what the status of radium treatment is, how often it prolongs life, and how often burns or other bad results follow. The above case was a miracle in spite of the burn. Why should the managements of these institutions not let us know the results of each experiment? This secrecy breeds distrust.

If every hospital adopted the End Result System for its cancer cases only, even if for the present no other classes of cases were reported, we might help this cancer problem in a practical way.

Suppose that after keeping up these Reports for several years, I should be able to prove some important point in clinical science.

Would not my proofs be considered worthless, because they lack authority?

Suppose that a member of a Charitable Hospital Staff should make a statement of the same kind. Would he not carry the weight of the authority of that hospital?

But, would not his statements carry more authority, if the Trustees of that hospital issued an End Result Report to which one could refer for confirmation (by the recorded clinical results) of suspiciously unusual claims?

I hold that my authority, backed by the End Result Report of even a few cases, is better than the *authority* of a member of the Staff of a Charitable Hospital which does not publish or have in its possession any such report.

And as for "authorities" themselves,—if End Result reports were in general use, perhaps some modest men who never speak in public, nor write for the journals, might be obliged to become "authorities."

We might pick for our consultants men whose results proved that they *knew* how to relieve given classes of cases.

At present, "authorities" are often made by position, not by having previously proved their unusual knowledge by demonstration of clinical success. And shall we not see men become "specialists" by demonstration of special knowledge, rather than men *choosing* specialties?

We recognize as "specialists" only those who have *proved by results* that their choice of a specialty has been followed by study, application, industry, and opportunity greater than ours in that particular group of cases.

Statistics and Experience

Some persons despise statistics. They quote the old story of lies, damned lies, and statistics. Some even trust their individual experience more than that of their whole race. They decide whether they will have an operation by whether their neighbor recovered or not. It makes little difference to them whether or not the operation was performed for the same condition.

We all have this tendency to believe the evidence of our own senses rather than the evidence deduced from the recorded experience of others. In other words, we trust our own senses and brains, which have constantly deceived us, more than the facts recorded and arranged for our use by others; and in any matter in which we lack experience ourselves, we had rather trust the senses and brains of some man whom we know has had much personal experi-

ence, than the dry, recorded facts which have been analyzed by some one who wrote a book.

And yet we know that as physicians or surgeons we are indebted for 99 per cent of our knowledge to the carefully recorded facts which the painstaking pioneers of previous generations and of this generation have given to us.

The truth is, we really go by statistics all the time, in matters which are tolerably certain, and only when in doubt do we fall down and worship Personal Experience.

It is our tendency to be surest of what (1) we ourselves have seen, heard, or felt; slightly less sure (2) of what our friends say they have seen, heard, or felt; somewhat less sure (3) of what persons we don't know say they have seen, heard, or felt.

Now, as every individual has this same experience in relation to others, it follows that we all are really more sure of what we all say we have experienced than what any one of us says he has experienced. In other words, each admits that the combined experience of others is better than anybody else's but his own; or if he has had little or none, that of some one whom he substitutes for himself and whom he believes has had much experience.

Since we trust our own experience so much, it is particularly important to finish each experiment we try, and be sure that it is complete. We should each like to have the other make sure of his experience before he advises us on the strength of it. If he, too, has experimented, let him be sure that he relates his results just as they were, and does not use his fancy.

It is for these reasons that these cases are reported, and that I wish to see the End Result System get into all hospitals. It will prevent my telling fish stories, and my friends at other hospitals from telling fish stories, and eventually lead to Statistics which will help everybody in the world.

If I can present such a Report for 337 cases, the 100 doctors of the Massachusetts General Hospital could give us a Report of 33,700 cases; and they only treat about 6,000 ward patients a year!

ANALYSIS OF OUR TOTAL ERRORS IN FIVE YEARS WITH A VIEW TO FUTURE IMPROVEMENT

It is the intention of this hospital to be of service to persons of moderate means. We plan to give them their money's worth at as low a rate as is consistent with the ability of myself, my colleagues, my assistants, and my employees to make a living. It is our intention as far as possible to have no bad results, and to make sure that every patient who leaves this hospital has been benefited to the utmost that skill, care, equipment, judgment, painstaking diagnosis, and intelligent selection of cases and of consultants can accomplish.

We believe that there could be no more exquisite test of a surgeon's ability than to put him in a position where he may operate on all hopeful cases, but where he must refuse to operate on those cases which he thinks he may not relieve, and must refer to the acknowledged leaders of his community all cases in which he dreads failure. If "the best" do not succeed, his judgment will be vindicated; if they do succeed, he will convict himself either of lack of skill, judgment, or self-confidence. Some day surgical science may reach a point where the surgeon will be willing to undergo this test, and not explain his failures on the ground of the unknown forces which we call impossibility and chance. If my scientific knowledge now enables me to do this with less than 2 per cent of error, surely in another generation such a test as this will be no more remarkable than those of the Civil Service today.

Owing to the system observed in previous Reports, of making marginal symbols and of summarizing them after the case abstract, we now have a readily available list of all our failures during five years. This enables us to analyze the total, to see what we can do about preventing the occurrence of similar errors; in other words, to improve our efficiency. The reader is referred to previous Reports for more detailed analysis of the symbols in each case.

[1] In the analysis which we now undertake, only those cases that have been under the charge of E. A. C. in this hospital will be included. Cases operated upon by E. A. C. in other hospitals previous to entrance in this hospital, or since their discharge from this hospital, will not be included, even though mentioned in the text. The detail of cases, in which the error was theoretical or resulted in trivial or no harm to the patient, will be omitted, although "Straws show which way the wind blows." During these five years, five patients operated upon by E. A. C. have died in the hospital. These cases will be considered separately on page 105.

Total Errors Due to Lack of Technical Knowledge or Skill in Five Years

Cases 39, 80, 114, 186, 250 were trivial. Case 31—I probably missed a small gallstone, but one of the Mayos missed the same one,

[1] The above omissions will explain those instances in which the marginal symbols in the Case Report are not referred to in the following analysis.

and the patient has since passed it. Cases 50, 220, 275—Perhaps lack of skill resulted in these symptomless hernias, or bulging scars following acute appendicitis with drainage. Case 103—Possibly the errors of skill resulted in orchidectomy. Cases 138, 255—Small, symptomless hernias in the epigastric wounds in patients who were relieved of lifelong discomfort. Case 124—I may have missed an ulcer of the stomach. Case 241—S. J. Mixter, J. G. Mumford, H. O. Marcy, M. H. Richardson, and C. A. Porter also failed in this case.

Even admitting these errors of skill, we know that all these cases had good results, and the errors only caused lack of perfection, not failure.

N.B. I am perfectly willing to admit that I am not a rapid or skillful operator, but I insist that my analysis does not convict me of lack of skill.

In detail, the only things of importance in which I find a lack of technical skill or knowledge are these:

(*a*) How to tell that you have removed the last small stone from the bile passages.

(*b*) How to prevent hernias and weak scars after drainage of appendicitis wounds, or hematomas.

(*c*) How to make sure that hematemesis is not due to an ulcer of the stomach.

These are the weaknesses of modern surgery, not my weaknesses. I believe my percentages are as low as anybody's. I go about to medical meetings, read the journals, visit hospitals, study hospital reports, ask questions of the eminent, but get no satisfactory replies.

When the End Result Report of some hospital in which the Trustees take an Inventory of their Product shows that some surgeon has mastered these important problems, I, with the rest of the surgeons of this country, will go to worship at their shrine.

Logical conclusion: If my analysis has been self-searching and accurate, and it is true that in five years these are the only errors due to lack of technical knowledge or skill, it may be fairly concluded that what we need for the success of this hospital is not more skill, but more patients.

Errors Possibly Due to Lack of Judgment

Trivial errors (17, 57, 104, 112, 156, 223, 282), with good results. Case 33—It may have been poor judgment to drain at first; at any rate, the result was good. Case 77—Possibly I should have removed the gall bladder, but the patient is still well. (P. S. See Abstract.) Cases 167, 196, 232—Perhaps too conservative.

Logical conclusions: If my self-analysis has been correct, and these errors of judgment, together with those involved in the five cases which died, are the only ones in five years, where can I find

better judgment? Do the End Result Reports of the Great Hospitals in Boston of the picked cases for operation before the Clinical Congress of Surgeons, published in *Surgery, Gynecology, and Obstetrics* for October, 1916,[1] show instances of better judgment? My judgment may be questioned for carrying the End Result Idea so far that I publish my own errors, but I defy any public or private hospital in Boston to show a consecutive series of results which will prove better *Surgical* judgment.

And as to my judgment in standing alone on the End Result Idea,—that remains to be proved, for Trustees will not be convinced until the Idea comes back to them from other cities, and the Bank Account of this hospital grows to be worth soliciting. How can they be expected to listen to an Idea without a Bank Account, when they know by the Bank Accounts of Surgeons on their Staffs that the Results at their hospitals *must be good?* If my Bank Account ever grows to be larger than that of my competitors at the so-called Charitable Hospitals, I shall certainly be offered some important position, even if my eyesight is failing and my hand trembles.

Errors Due to Lack of Care or Equipment

There are certain minor complications which occur in the healing of wounds which are of no great importance except as warnings: hematomas which absorb, serous discharges which "weep" for a few days, overlapping of the skin edges, pus in the stitch holes, stitch abscesses, or trifling sepsis in the subcutaneous fat. These are most often errors of haste, carelessness, and inaccuracy. They are common in the Charitable Hospitals, because the busy surgeons sew up the wounds hurriedly, or leave them to assistants to get their experience on. True, to each individual patient they are not very important errors,—they merely mean a few unnecessary or painful dressings, a few ugly or sensitive scars, etc.

[1]The surgeons of Boston may well be congratulated on being the only group who have operated before the Clinical Congress of Surgeons and who have reported publicly the result of the operation in each case. They have not asserted their superiority, but their willingness to be compared. They have stood for the principle that the public display of operative technique should be justified by a public report of the success or failure of the operation. Amphitheater exhibitions are given to increase the prestige of a hospital and its individual surgeons, and it is often impossible for the audience to be sure that technical skill is accompanied by good surgical judgment. It is to be hoped that future Clinical Congresses will follow the example set by the Boston surgeons, for an End Result Report of the cases operated on before it would do much to protect the patients. To the surgeon operating in public, there is always the temptation to sacrifice essentials to appearances.

Such were Cases:

Stitch abscess or fat sepsis—18, 138, 155, 156, 189, 199, 283, 302.

Serum—74, 174, 244, 248, 261, 265, 274, 280, 292.

Hematoma—232, 241, 255, 276, 281.

Overlapping—234, 235, 241, 279.

These occurred in 25 operations which should have had perfect, dry, clean wounds *to which the gauze applied at the second dressing would not adhere.* There has been no sepsis which has caused any serious delay in the convalescence, or any ultimately bad result to the patient. The worst cases were 138 and 156,—read their records. Both now have symptomless, weak scars. All the other clean cases had *perfect healing.*

What can we do to avoid even these minor errors in the future? For where these trivial complications occur, sooner or later serious ones will follow, as they do at those Charitable Hospitals where analysis of the responsibility is neglected.

Those cases in which there was hematoma or serous oozing have, as a rule, followed the local use of novocaine and quinine urea in conjunction with general anæsthesia, and we consider that the relief from pain justifies this slight risk. However, we have discarded quinine urea as an unnecessary adjunct to novocaine.

Logical conclusions: In five years there has been no death from sepsis or even a serious consequence, although Case 156 had a very narrow margin, and now has a weak scar. There has been no other bad consequence which we can attribute to lack of care or equipment. Do we need marble halls and terrazzo operating rooms, vaulted ceilings and expensive sterilizers, like those of the Charitable Hospitals? There is often dust in our corners, the floors are of wood, the instrument boiler cost $0.87, the hot-water sterilizers are commercial kitchen utensils (price, $13.55), and both our X-ray machines are second-hand. But the fact remains that we need more patients more than we need more equipment or care. Nevertheless, we have had enough errors to see that we cannot relax our care, if we are to continue to be Standard-bearers of the End Result System. More equipment we shall have, when the fact that our beds remain full justifies it. More varied equipment might justify caring for other kinds of cases, but we do not need it at present for cases of the same kind.

Errors Due to Incorrect Diagnosis

Cases of academic importance only: 1, 18, 105, 142, 189, 232, 236, 237, 242, 244, 247, 251, 256, 272, 278, 284, 285, 295, 301, 302, 308, 328.

Cases in which the incorrect diagnosis led to an unnecessary exploratory operation: Cases 51, 96. These patients would have been saved a certain amount of pain and risk by omitting the primary operation. Case 119—In this case of recurrent cancer, the supra-

clavicular glands were removed, and showed no cancer cells. As the patient ultimately died of cancer of the lungs, the operation was unnecessary, as well as an error in diagnosis. Case 145—A cancer of the cardiac end of the stomach was found to be inoperable. Case 243—This was one of those peculiar cases of tuberculous peritonitis, in which the mere opening of the abdomen apparently cured the disease. Nevertheless, I think it is very doubtful whether operation should be undertaken on this chance alone.

Cases in which a better diagnosis might have saved the patient trouble, time, or expense: Case 90—This patient perhaps has gallstones which might have been removed when the appendix was. Case 131—We should have tried medicinal treatment before operating, but the result was perfect. Case 332—Probably a laparotomy should have been done, instead of simple curettage of the uterus.

Logical conclusions: If we had had superhuman diagnostic ability, we should have been saved 19 errors of academic importance only; four cases would perhaps not have had exploratory operations; and four patients might have been saved some time and trouble.

Would this have justified our employing a diagnostician for five years? Certainly not, from a business point of view. How much would it cost to employ one to diagnose every case and register his diagnosis in comparison with ours? What portion of our average fee of $61.12 for operation and three weeks' care would he earn, if he did this? In how many of these cases, in which I failed, would he have succeeded? And where could we obtain one with a good record? Is there any hospital which records the accuracy of its diagnostic staff?

But we have a place for some young man with a good training, who wants to learn to become a diagnostician. We will give him bed, board, lodging, and a living salary, and publish, in every case, his diagnosis as against ours. When he is worth it, he can have a share in the business.

Cases in Which the Nature and Extent of the Disease Was the Main Cause of Failure

From the point of view of efficiency, it is clear that this hospital should not undertake to treat cases having diseases which we cannot cure or relieve. We ought to send such cases to persons who are more expert, or who have studied the diseases in question particularly.

In our analysis of our cases, we find that in the following instances we had to deal with diseases which we cannot cure:

Cases of cancer which have recurred or died since leaving the hospital: 10, 38, 39, 42, 53, 68, 78, 85, 119, 145, 146, 204, 231, 232, 237, 258, 268, 269, 327, 331, 337.

In all these cases we were able to prolong life and to relieve suffering, although we could not cure them. On the other hand, we have the following cases of cancer which at varying intervals

since the operation have been reported as still well: 46, 51, 110, 114, 133, 148, 151, 186, 223, 252, 261, 267, 270, 284, 291, 296, 298, 308, 326.

Neurotic individuals who had surgical conditions and were helped, but not perfectly relieved: 74, 94, 116, 117, 189, 241, 289, 319.

Besides these, we find the following conditions which we have not been able materially to benefit, and which therefore are classes of cases we do not care to undertake to cure in the future: Case 8—Banti's disease. Cases 47, 332—Dysmenorrhœa from anteflexion. Case 54—Oblique fracture of clavicle. Cases 76, 178, 293—Chronic nephritis. Cases 96, 287, 298—Diabetes. Case 127—Neglected empyema. Case 137—Tuberculosis of the lungs. Case 221—Multiple diseases. Case 253—Epilepsy. Case 292—Vegetative endocarditis. Case 304—Enlarged seminal vesicle. Case 336—Chronic bacteriuria.

We shall watch other hospital Reports to see where to send these cases in the future.

Logical conclusions: We do not want to undertake the treatment of cases of advanced cancer; ptosis and neurasthenia; Banti's disease; anteflexion; oblique fractures of the clavicle in young ladies who wear low-neck gowns; chronic nephritis; neglected empyema; pulmonary tuberculosis; epilepsy; endocarditis; bacteriuria; diabetes; or enlarged seminal vesicles.

We know that we do not have success with these conditions, and we doubt if anybody else does; but we do want to keep informed as to what men are working on the study of these conditions, and could therefore probably give the best possible up-to-date treatment to our patients.

For instance:

Case 278 has taught us that Dr. Henry Christian, by his years of study of nephritis, is able to prove it by some actual benefit to the patient.

Case 308 has taught us that the $150,000 worth of radium at the Huntington Hospital is capable of producing magical good in at least one case of inoperable cancer.

Case 8 has led us to find that Dr. Beth Vincent, who has devoted time and energy to studying blood conditions, has improved cases of splenic anæmia, the forerunner of Banti's disease, by splenectomy.

Case 137 has led us to know of the unfailing care and kindness of Dr. Chadwick, of the Westfield Sanatorium.

But we are still in doubt about the proper person to whom to refer our cases of dysmenorrhœa from anteflexion.

Our future policy will be to keep a card catalogue of all the specialists in Boston, and by comparing their scientific papers with the Reports of their hospitals, find out whether their study has enabled them to prove that they can cure the diseases on which they write and in which they specialize. If we find that they do, we shall

invite them to join our Consulting Board, or shall refer our well-to-do patients to them.

If any one not on the staff of a Charitable Hospital thinks this unfair, he can bring his cases to our hospital, and we will do his advertising for him, if he will take the chance as we do. *He need bring only the cases he expects to cure.*

Cases Who Refused to Accept Treatment

Certain cases came to this hospital too late for a satisfactory operation, although they had been urged by their physicians to have an operation at a time when their diseases could have been satisfactorily conquered. For instance, Case 275 had permitted an appendicial abscess to accumulate, and continued to refuse relief by operation. She paid for it with a prolonged convalescence, an appendicial fistula, and a second operation for removal of the appendix. Case 231 probably lost her life by refusing to have an ovarian cyst removed, when it could have been safely done; and only consented to operation after the cyst had ruptured, and metastases had spread throughout the abdominal cavity.

In one case (Case 8) the reverse was true. Dr. Harrington, Dr. Chute, and I advised exploration of the kidney in a case of hematuria. The patient refused, and later autopsy showed that the operation would have been useless. The spleen should have been removed.

Of the other cases which refused operation, we do not know the result in Cases 35, 84, 122, 164, 230. In Case 111, we probably could have helped the patient. Case 151 is now well, but she took grave chances, and endured more discomfort than the operation would have caused her.

In five years we find very few, if any, real errors due to the lack of coöperation of the patients while in this hospital, and these errors were in most cases, perhaps, due to our lack of conviction in the advice we gave. In other words, we have advised, not urged or insisted on operation in these cases. We have, as a rule, found patients too ready to be operated upon, rather than the reverse. Of course, in most cases, patients who come to us have already been convinced of the necessity of operation by their own physicians, and in our opinion this important counsel is one for which the physicians get too little credit and make too small a charge. What can we do, in the future, to diminish the number of errors due to patients' not seeking operation in time?

Logical conclusion: Reduce the price of our consultation fee for thorough examination by precise methods, such as the X-ray and laboratory tests, etc., to a low enough figure, so that the patients and their physicians will not be withheld from seeking our advice on account of the financial burden. This we are doing by the grouping of specialists proposed. If we can let every one in the Community know that they can obtain a high standard diagnosis at a

certain fixed sum, we believe many will be induced to seek professional advice earlier than they do now. We plan to compete with the Massachusetts General Hospital clinic, which already performs this service to a certain extent. We plan to show the Community that we can do the work better. Our charge will be fixed at a low enough figure to compete with that of the Massachusetts General Hospital.

Deaths

Five of my cases—24, 45, 224, 230, 305—died while in the hospital. In these five cases, it is difficult to attribute the failure to any one cause. All were necessarily errors of judgment, because they resulted in failure. In each case I knew that the chance for the patient was very small, but as all of the patients suffered so intensely that life was unendurable, it seemed only fair to give each of them the chance of cure by operation.

Because I took that chance and failed, it convicted me of having a lack of sufficient ability to save these patients. As may be seen by the histories, there was a very narrow margin between success and failure. In each case there was some minor error of diagnosis. Possibly, had we made sure of the diagnosis before operating, we might have saved some of these patients. It is clear that if we had not operated, death due to the patients' diseases would have occurred before many months or years, for these conditions are among the gravest that come to a surgeon.

In none of these five cases could the patient be considered blameless, so far as refusal of treatment was concerned. They all accepted my advice, but in the early stages of their diseases, when operation would have offered a really favorable chance, they ignored the writing on the wall. All of them were strong-willed, brave persons, and fought their fight with the disease for a long period before submitting to medical advice, and even after the operation kept their courage to the end.

Naturally, we do not wish to care for similar cases in the future; and should such cases come to us, we shall, so far as our judgment can permit us, call in the best surgeon we can get from the staff of one of the Charitable Hospitals, because these surgeons are appointed by Trustees *as the best Surgeons in the Community.*

Logical conclusions: Since we can call one of the best surgeons for such cases, why take charge of similar ones in the future? Even the great surgeons must be willing to operate for nothing.

What can we do about these "bad risks" in the future? As we explained in our last Report, a certain number of deaths are necessary to the surgeon in his business. A surgeon whose cases always get well, gets no reputation for "nerve." It is said that he will not take a chance when he ought to do so. A surgeon must be "fearless" and "bold," and the only way he can prove that he is, is by a death now and then in his practice.

Shall I say in the future?:

1. You are too bad a risk; go to a first-class surgeon.
2. You are a bad risk; I must double my usual fee.
3. You are a bad risk; you need not pay unless you live.

All are logical. I like the last best.

Calamities

A committee, in investigating cases of errors in a large hospital, would unavoidably find certain cases in which failure was due to the fault of nobody. For instance, there are certain cases, such as pulmonary embolism, status lymphaticus, heart failure, etc., which no one is wise enough to foresee, and yet which occur with sufficient frequency to be a constant concern to surgeons. What per cent of such cases would be a fair allowance? Of the 260 cases on whom I have operated at this hospital during five years, one has suffered from a calamity of this kind:

Case 45, a nephrectomy for stone (see page 17), died suddenly after the wound had healed, and just before the time the patient had planned to go home. She had very bad organic heart disease, but as the operation had been a nephrectomy, it is probable that death was due to pulmonary embolism rather than to heart disease. If it was due to embolism, it was a Calamity; if it was due to heart disease, there was an error of judgment in estimating the strength of the heart.

If End Result reports existed in the large hospitals, a definite ratio of such Calamities could be established, and definite studies made of their character, causes, and means of prevention. My own ratio of Calamities has been 1 to 260.

Logical conclusions: What can we do to prevent similar calamities in the future? By a constant review of the literature on pulmonary embolism, we should become able, as soon as experimental science or clinical reports show that pulmonary embolism can be prevented, to ascertain the methods which will protect our patients from it. If our hospital were larger and well financed, we might devote special research to the question; we are interested in what is being done at the New York Hospital in investigating this subject.

A review of the cases on page 143 which died at the Massachusetts General Hospital following my operations, shows that lung emboli and lung infections (probably usually combined) are the most common cause of operative mortality. The published reports of the causes of death in the Annual Reports of the Peter Bent Brigham, Boston City, and Massachusetts General Hospitals show the same thing. Yet, so far as I know, none of us are devoting time, money, and energy to finding the cause and method of prevention of this greatest enemy of modern operative surgery.

If I can thus analyze my errors and deficiencies, a Charitable Hospital can. Before Trustees vote more funds for new buildings and equipment, let them appoint Efficiency Committees to make analyses of the results they are getting now. They can then decide whether to spend their money for improvement in quality or in quantity,—for products or waste products.

PART II

THE FINANCIAL REPORT

AN ILLUSTRATION OF THE MONEY VALUE OF A SURGEON'S SERVICES AND THE INFLUENCE OF THE CHARITABLE HOSPITALS UPON IT

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Ego

"Success treads on every right step. For the instinct is sure that prompts him to tell his brother what he thinks. He then learns that in going down into the secrets of his own mind, he has descended into the secrets of all minds. He learns that he who has mastered any law in his private thoughts, is master to that extent of all men whose language he speaks, and of all into whose language his own can be translated.

* * * * * * * * *

The deeper he dives into his privatest, deepest presentiment, to his wonder he finds this is the most acceptable, most public, and universally true."—*Emerson.*

I started the practice of surgery primarily to make an honest living. At first I was guided by the example of men who were generally respected, mainly my teachers. It was their custom, and had been the custom of their teachers before them, to undertake treatment because the patient sought their aid, even if they knew that other available colleagues were more competent to obtain a good result for that particular disease for which the patient consulted them. It was the custom in the hospitals to which as a student I was led by Harvard University, for the visiting staffs to give treatment or to operate by the ward, by the calendar, or by the time of day, seldom because of the particular study of, or demonstrated ability to succeed in relieving, the condition in hand. Again and again I have seen surgeons who had given special study to some particular group of cases, stand by and watch some colleague do what they knew was the wrong operation, or else patiently suggest to their colleague what ought to be done, and even then watch him take some step which would lead to death or lifelong misery.

I saw cases lying relatively neglected in the wards of surgeons who took no interest in that particular disease, and at the same time other surgeons, who were interested in, and had made special study of such cases, standing idle because of the calendar. I saw distinguished medical professors hold over for a future clinic, cases

which obviously needed immediate operation. As a young surgeon, I did at night the most serious and difficult operations, and in the daytime watched the great surgeons hurriedly do trivial and simple ones. Operations like that for hernia (in which careful asepsis means more than skill) were done hurriedly by busy surgeons, and cases of cancer of the stomach, which require a long, tedious operation, were discharged without operation, as hopeless. Sometimes sixty patients were visited and several patients operated on by a man with "reputation" in an hour. No one ever thought of contrasting the results of such work with that of some plain, conscientious man without a "reputation," who was able to take plenty of time for each case.

Thus I was taught by eminent example that these abuses were necessary in the practice of surgery, just as "business methods" are necessary in successful business. "Human nature is essentially bad, and a wise man must be content with being a little bit better than the average!"

When I entered private practice, too, I found I must take whatever cases came to me; and that as I had my living to earn, I could not be expected to refer to those more competent, every case that came. I must make my errors just as those before me had. I was ambitious to be a surgeon, and it became at once apparent that I must do one of two things:

Either I must obtain a hospital appointment, or

I must take advantage of every patient that came to me, and let him think that I was as competent a surgeon as he could get.

Through family position, acquaintances, well-wishers on the Staff and Board of Trustees of the Massachusetts General Hospital, I was able to secure a position as Assistant Surgeon there.

Immediately the cases that came under my care were as grave and difficult as any I have had since. They came by the time of day, or of the month, or by the number of the ward, the changes in the calendar, or the absence of my Seniors. It was a wonderful opportunity for a young man to get major surgical experience, but I cannot think it was fair to some of the patients. However, it was long before it occurred to me that any other method of distributing the cases among the members of the Staff was possible. I did what every other surgeon had done before me, and was grateful for the opportunity.

After fifteen years' service, during which the possibility and practicability of the End Result System had occurred and recurred to me with ever increasing force, I resigned as a protest against the Seniority System of Promotion, under which I had attained high rank and to which I have been indebted for the excellent surgical experience and training which I have had. My enemies might even say that I took all the good I could out of the hospital, and quit before doing my share.

I saw, year after year, Seniors who used the hospital chiefly

to increase their own prestige and practice, continue to hold positions which rightly belonged to Juniors, who did their work for the hospital and its patients. I saw, ranking below me, surgeons who were evidently more competent than some of those above me. I saw energetic, ambitious young men leaving the hospital, because it was obvious that nepotism and seniority would never give them a fair show. In short, I saw that such hospital positions were sinecures,—valuable as seats in the Stock Exchange,—and not what they pretended to be,—honorable positions, guaranteeing merit. Although I myself had achieved my position by nepotism, and maintained it by seniority, I would do so no longer.

If I could not claim my position through aggressive merit, I would no longer hold it in contented complacency. I would call the Trustees to make good the following statement which they had proclaimed, or else admit that it was a Pretense:

"*Resolved,* that in making appointments the Trustees will consider the fitness of the applicant for the special services which he will be called on to perform, and will seek to secure the best service available, without being bound by any custom of promotion by seniority."

This makes a promise which apparently they do not intend to fulfill.

I therefore resigned, immediately after they had moved my senior up a step. I then reapplied for the position of surgeon-in-chief, on the ground that the results of my cases had been better than those of any other surgeon.

Trustees cannot understand this attitude of mind,—that a man should give up a comfortable (supposedly honorable) position and claim by merit, and insist on maintaining by merit, the same position which he had already snugly attained by nepotism, and was almost sure to continue to enjoy by seniority. Such a man they distrust.

> "Let me have men about me that are fat,
> Sleek-headed men, and such as sleep o' nights;
> Yon Cassius has a lean and hungry look;
> He thinks too much: such men are dangerous."

But the fact is this: I have returned to that vague state of private practice where I am in competition with the Charitable Institutions, on the one hand, and their Staffs on the other. I now realize that these institutions and their staffs are "Combinations in the Restraint of Trade."

But why should I not do what every young surgeon or every surgeon without exceptional hospital opportunities *should do,*—attempt only those operations which I feel sure will result favorably?

Here is where the competition with Charitable Institutions (Combinations in Restraint of Trade) comes in.

Dr. A. is a private surgeon with no hospital appointment or "reputation," but who fully intends to do what is right by his

patients, that is, to charge a reasonable sum for his labor, and to undertake only operations which he is qualified to do. He is ready to give time, care, and personal attention to his patient, and does not pretend to be "the best surgeon."

Dr. B. is a hospital surgeon appointed by the Trustees to attend their patients, because "he is the best man they can get." The position is a guarantee that he has abundant opportunities to practice different forms of operations and to keep up with modern advances. Which of these would you select for your surgeon, reader?

Now put yourself in Dr. A.'s place, in case patients come to him. Dr. A., if he wishes, can always get Dr. B. to do the operation for him for the asking. Dr. B. has the best chance for all classes of patients. If the patient is poor, Dr. B. can take him into his Charitable Hospital free of charge. If the patient has a moderate income, Dr. B. can underbid Dr. A. without loss. If the patient is rich, he will, of course, engage Dr. B., because he can afford to do so, and this will compensate Dr. B. for his so-called Charity.

If, whatever the circumstances of the patient, the operation is a difficult one, Dr. A. has no moral right to do it, if he can get Dr. B., because Dr. B. is having constant practice. And as a matter of policy, if anything went wrong, Dr. A.'s reputation would not stand it; while Dr. B.'s position on the Staff of the "God Have Mercy On Us Hospital" would cover a multitude of sins, even if this position were obtained by nepotism and maintained by seniority. The only thing Dr. A. can conscientiously do, is to persuade himself and his patients that by excessive, painstaking care he can compensate for Dr. B.'s skill and experience (and habit of hurry), or do the work for less money.

But where does the injustice or inefficiency of all this come in? Simply in this,—that the Trustees of our Hospitals give Dr. A. no fair show, and Dr. B. an unfair show.

If they kept Dr. B. up to time,—made him demonstrate his skill and knowledge by his results, and gave Dr. A. a chance too, it would be quite a different matter. Incidentally they would get their own work done better, and be able to recommend competent physicians, surgeons, and specialists to the Public.

I have sympathy for Dr. A., because even with all Dr. B.'s early advantages, in real training, I am reduced to Dr. A.'s position. I have to run a hotel to compete with the Charitable Hospitals. I have to assume responsibilities which Dr. B. shirks under cover of his Hospital appointment. I want to bring him out in the open for a fair fight, to see who can serve the Public better. I would gladly be beaten *in fact* by Dr. B., if he can and *does* do better work than I do; but not because his Hospital, *without looking into his work*, guarantees him.

By following Emerson and thus exposing my own "soreness" with the Trustees of the Massachusetts General Hospital, I hope to find that what I have to say is "most acceptable, most public,

and most universally true," for my grievance is the same as that of many a young surgeon who wants to take his place by merit instead of by pull.

A Few of the Things on Which I Do Not Agree with Richard Cabot

Two years ago it occurred to me that publication of the End Results of some 2,000 operations which I had performed at the Massachusetts General Hospital would be a more effective illustration of the use of the End Result System than the few hundred which I give in these Reports. I went to Dr. Washburn, the Administrator of the Hospital, for his permission to send for the cases on whom I had operated (of which I have a card catalogue) to come to see me at my hospital, so that I could examine them, and thus make a complete report. I also told him that I should be glad to let these persons know that I now have a private hospital for persons of moderate means, to which they or their friends might come if future operations were needed.

Dr. Washburn most politely replied that he would be glad to have me send for the cases, but that he could not permit me to ask them to come to my hospital for examination, as the patients belonged to his hospital, and they might be tempted to come to my hospital for treatment. He kindly said that I could examine them at the Massachusetts General Hospital, if I would go down there to do it. I explained that I could not afford to do this, as I had to be on hand at my own hospital, which was losing money. Time spent at his hospital in doing work like that meant that I must *charge my own patients for that time.* As I had already lowered my own prices to zero, to compete with the Massachusetts General, and was playing a losing game, how could I afford to spend time away from my office on such altruistic work as looking up old cases?

Dr. Washburn's attitude seemed to me so unfair (although it is substantially the same as that in all hospitals), that for some time I was so disgusted I did nothing about it at all. Later, I talked with him again, saying I could not see what harm it would do, if a former member of the Staff, honorably discharged, did succeed in inducing some of his old patients to employ him. It even seemed to me that it might relieve some of the pressure at his hospital, and allow the Staff time to do its work a little better!

The Administrator referred me to the Executive Committee, consisting of Dr. Scudder, Dr. Porter, Dr. Edsall, Dr. Cabot, and himself. I spoke for a few minutes before them, trying to make them understand that in refusing this request they were throwing work on their Hospital which I could perfectly well perform to the satisfaction of the patients (that is, supposing some of my old cases did employ me).

"Why!" said Dr. Cabot, "if we allowed you to see our patients at your hospital, we should have to allow every member of our

Staff a like privilege, and we should have no clinic left!" And the Executive Committee voted unanimously to back up Dr. Washburn in refusing me the privilege of sending for the cases to come to my hospital for examination.

I tried to explain to them that their hospital, aided by a subsidy, was competing with mine; that they were wronging all young men whom I might employ to help me in my honest work. I was willing to refer back to their hospital all difficult and interesting cases, but cases like hernia or fibroids, which I could cure as well as their Staff could, were due me (and any young surgeons I might employ) to make a living out of, in return for the goods I was able to deliver.

I tried to show them that they were graduating students who must make their living in private practice. If the Massachusetts General Hospital allowed me to make a small profit out of successfully treating simple cases, I could build up a business large enough to employ some of these young men whom they were graduating. This would save the young men the necessity of undertaking to treat cases they were not qualified to treat, as they had been taught to do at the Hospital by the example of their seniors.

I think that not a man in the room, not even Dr. Cabot, had foresight enough to see what I meant. The idea may be brought out differently, in this way: Dr. Cabot insists on criticizing the present-day practitioner, who was taught by example that every doctor has a right to his patients, just as Dr. Cabot says that the Massachusetts General has a right to its patients. What he should do, instead of blaming the present-day men who are barely earning a living, is to bring up a new generation of practitioners, whose ethics are that they have *no right* to their patients, unless they can diagnose the cause of their symptoms, and remove the underlying pathological condition as surely and safely as any one else.

We shall never teach the practitioner not to accept cases he is not qualified to cure, while the hospitals show medical students, by example, that they have a right to treat patients by the ward or by the calendar. If the hospital maintains a right to the patient, whether it can cure him or not, so will the practitioner. Any intelligent student sees little moral difference between his own right to experiment and that of a member of the Staff who accepts that right by nepotism and maintains it by the custom of Seniority Promotion.

But why pitch on Richard Cabot and make him responsible for things which are common abuses in many hospitals, and perhaps less in his hospital than in others? Simply because he seems to be the only one who takes a real interest and who seems to have more or less definite policies. The Trustees of his own hospital and of other hospitals are beginning to lean on him. His is the greatest influence on the medical thought of this generation, and he has won a place so that the indolent-minded use his ideas as "authority." When a person reaches this stage of "authority," his poor ideas do more harm than his good ones do good. The bad ones, stamped

with his name, become fortified for a further time against attacks, and even his good ones stand in the way of still better ones which some other aggressive mind is trying to introduce.

I pay Dr. Cabot the compliment of saying that some of his ideas are worth attacking, and I find no one else in Boston, except Dr. Washburn, who takes a vital interest in this hospital problem and its relation to medical practice. I believe that they both desire to find the Truth, and it is my endeavor to attract their attention to the path where I believe the trail lies. I bay at them, loudly enough for every one to hear, so that they may lead the pack on the right scent, for they seem to me to have lost the trail. It would be useless to talk to them individually, for they are both partisans and leaders. Such men are strong, because they adhere to a purpose through thick and thin. When their purpose is incorrect, they do more harm than weak persons do.

They believe that it is right for them to continue to use the prestige of the hospital to corner the "material."

A well-endowed Charitable Hospital, with prestige and plenty of material, can set up "authorities" and "specialists" by assigning groups of "material" to individuals. They thus give exceptional *opportunity,* and exceptional opportunity has a distinct money value in the Community. They can in this way corner the Genito-Urinary Surgery, the Gall Bladder Surgery, or the Stomach Surgery of their neighborhoods. A surgeon who does not have the aid of the prestige and opportunity thus given is at a great disadvantage, no matter how able he may be nor how good results he gets in the few cases which come to him. Should not the recipients of these privileges at least give an account of the cases entrusted to them? It is unfair enough to give special privilege to those not qualified, but it is even worse to take away from those who are qualified the opportunity to benefit the patients and the world. Unfortunately, today, it is the opportunity which he has at some Charitable Hospital which determines the value of a surgeon's time, rather than the use he has made of that opportunity. As I see it, the main point on which I disagree with Richard Cabot is as to whether or not this hospital opportunity is to be assigned by special privilege or by fair competition.

I claim that the End Result System will tend to bring about fair competition, and benefit alike the Patient, the Public, and Medical Science.

The Value of Surgical "Material"

The following quotation from our last Report seems worth repeating:

"A surgeon needs at least 100 operations a year 'to keep his hand in'—that is, to operate twice a week. Any surgeon can do, and some do, 1,000 operations a year and even more. These are about the physical limits, apart from brains. Therefore, somewhere

between 100 and 1,000 operations will be the best number to get the best results; and undoubtedly some individuals will do better work with small numbers, and others with large numbers. For Cushing to do 100 brain operations is probably more than equivalent in time to Mayo's doing 1,000 laparotomies, yet to the individual the services of both are beyond price. To the ordinary practicing surgeon who is not a teacher or a scholar, there must be a mean between these extremes, varying with the character of the individual and type of operation he does. To do 1,000 operations a year under ordinary circumstances of practice would leave a man hardly any time (or inclination) for study or research; to do 100 might leave him too much. Doing over 1,000 would mean doing some badly, even if the operator were a very strong man. Doing less than 100 would soon mean too little experience and skill. Perhaps 300, with 300 working days, would give the highest percentage of satisfactory results. Let us throw in 100 for charity and do 200 for a living.

200	at $100	= $20,000	a year
200	at $200	= $40,000	"
200	at $500	= $100,000	"
200	at $1,000	= $200,000	"
1,000	at $100	= $100,000	"
1,000	at $1,000	= $1,000,000	"

Do these figures give you some inkling of the value of hospital appointments and the necessity of a surgeon's getting to the point of having at least 100 cases to keep his hand in? Do they suggest the value of hospital material?"

I then presented the following statement of the fees I had received from the 270 cases whose abstracts appeared in the two previous Reports; my own fees only are included,—not those of the other surgeons who operated here:

Cases paying less than Hospital Fee[1]	91
Cases paying Hospital Fee only	89
Cases paying E. A. C. less than $100 Professional Fee in addition to Hospital Fee	38
Cases paying from $100–$200 and Hospital Fee	23
Cases paying from $200–$300 and Hospital Fee	19
Cases paying from $300–$500 and Hospital Fee	10
	270

Of these cases I operated on 193 myself, and received for them an average Professional Fee of $69.36 for the operation and after-care.

[1] The Hospital Fee is $50.00 for the first week and $25.00 for each week thereafter.

For the year ending July 31, 1916, the following is a similar statement:

Cases paying less than Hospital Fee	5
Cases paying Hospital Fee only	42
Cases paying E. A. C. less than $100 Professional Fee in addition to Hospital Fee	16
Cases paying from $100–$200 and Hospital Fee	4
Cases paying from $200–$300 and Hospital Fee	4
Cases paying from $300–$500 and Hospital Fee	3
	74
New Cases	67
Re-entries	7
	74

No patient has been charged a Professional Fee of over $500, no matter how long his stay.

All of these fees were, of course, swallowed up in my loss.

The average Professional Fee for the 67 cases on whom I myself operated during the last year was $61.12. Therefore, I have at least succeeded in approaching the ideal of a "hundred dollar hospital with a hundred dollar surgeon"; for whereas previously 91 cases paid less than the Hospital Fee, in this last year only 5 paid less. Previously, 52 were charged more than $100, and this last year only 11 were charged more. In other words, I do less for nothing and less for exorbitant prices.

But if I could once establish a reputation that would assure me of 10 beds full of "material," you could see the value of it.

The Concept of This Hospital[1]

This hospital assumes that the great middle class of the community has now no method of obtaining good surgical treatment at fixed reasonable prices. Surgery is usually either hurriedly done at the Charitable Hospitals for nothing, or done at a relatively exorbitant price by the hospital surgeon in private practice. We plan to meet this demand for good surgery at low prices.

The hospital assumes that any self-respecting individual can raise at least $100 for an operation, including his board and nursing. A man who has not saved, or who cannot find four friends, former employers or relatives, who will lend him, $25 apiece, need not mind going to a Charitable Hospital. (If any philanthropist doubts this, let me refer to him all such cases that come to me.)

The average operation takes about three weeks of hospital care, and we assume that the $100 is to cover these three weeks, so that we arrange $50 for the first week and $25 for each week thereafter.

I believe that I can afford to run a hospital of 12 beds and charge only the fee of $50 for the first week and $25 each week

[1] This page is repeated from the last Report.

thereafter as a minimum price. I plan to run the hospital on this scale, with an expense exactly equivalent to that standard, and to make my own living from what professional fees I can obtain from richer persons, or from operations outside the hospital, or from office practice. The standard of my hospital living and equipment will be about the same as that of a hotel charging $25 a week. This is good enough for even rich people, and a little better than what the medium classes have in their own homes in the city. Thus, if my reputation for care and thoroughness increased so that 10 of my 12 beds averaged full with a waiting list, the hospital itself could earn $17,333.33 per annum,—for it would take 173⅓ cases for 3 weeks. For this sum, the essential equipment and salaries could be maintained on even a better scale than at present. This makes it for our interest and for the patient's interest to shorten the convalescence, since room is made for another patient; and the more often the $50 week is brought around, the better for us. Then, too, it makes it for our own interest to avoid complications, for we lose money by having any patient stay over three weeks on account of complications.

Another assumption is this: that I personally can do my best work with about 12 beds. A surgeon who operates for more beds has to neglect detail and turn over too much to his assistants. One who operates for many less does not keep his hand in.

Statement of Assets and Liabilities

August 1, 1916

Assets	
Cash	$1,108.92
Accounts Receivable	2,367.66
Real Estate and Buildings	32,000.00
Additions and Betterments	5,514.04
Apparatus and Instruments	548.09
X-ray Apparatus	1,063.39
Furniture and Fixtures	1,729.06
	$44,331.16
Liabilities	
Accounts Payable	$2,252.96
Bank Loans	14,000.00
First Mortgage	20,000.00
Profit and Loss	8,078.20
	$44,331.16

The Real Estate and Equipment of the hospital are worth today just about what this statement shows—$32,000. This means that if the property were sold, the Profit or Loss would depend on what would be realized for improvements, furniture, and professional equipment for over or under $8,078.20.

Now as the hospital building is only a modified apartment house in a rather crowded part of the city, it is a decided contrast to the marble halls and spotless corridors of our Charitable Hospitals.

However, can any Board of Trustees produce from their hospital records a consecutive series of major surgical cases which will show fewer errors of skill, knowledge, care, equipment, or surgical judgment than ours do?

On the principle of the parable about the talents, have the Trustees of the Peter Bent Brigham Hospital done a proportionate amount more with their $6,612,679.77, or the Massachusetts General Hospital with their $8,405,874.72, than I have with this $8,078.20?

Receipts and Expenditures

August 1, 1911, to August 1, 1915

Receipts

Hospital Fees	$21,515.46
Board Special Nurses and Guests	1,408.32
Professional Fees	13,387.06
Rents and Miscellaneous Revenue	1,541.99
Loss	3.367.94
	$41,220.77

Expenditures

Running Expenses	$31,994.85
Interest	3,630.12
Uncollectable Accounts	1,062.15
Doubtful Accounts	725.60
Depreciation Apparatus and Instruments	204.25
Depreciation Furniture and Fixtures	500.50
Depreciation Real Estate and Buildings	880.00
Depreciation Additions and Betterments	94.68
Maintenance Real Estate and Buildings	2,128.62
	$41,220.77

August 1, 1915, to August 1, 1916

Receipts

Hospital Fees	$6,840.02
Board Special Nurses and Guests	443.00
Professional Fees	3,418.54
Rents and Miscellaneous Revenue	736.26
Loss	2,216.60
	$13,654.42

Expenditures

Running Expenses	$11,869.02
Interest	1,541.72
Depreciation Real Estate and Buildings	220.00
Depreciation Additions and Betterments	23.68
	$13,654.42

As may be seen in the first statement, my loss for running the hospital, including my Professional Fees, in the first four years was $3,367.94. In this last year alone (owing largely to the hospital's having been closed for two months) it was $2,216.60. This means that in five years I have lost $5,584.54 and a fraction of my labor. All the professional fees I have made here have been used to pay the expenses of my 5½ empty beds. If these beds had been full of Hospital Fee cases paying only their board, I should have been able to put my professional fees in the bank. Or, if some one should endow my 5½ empty beds, it would be equivalent to giving me a position at a Charitable Hospital, and I should begin to make a profit!

But, after all, I have lost only $1,116.91 a year, and have not worked any harder than I used to for the cases under my care at the Massachusetts General. $1,116.91 is not much more than the hospital surgeons spend each year on new automobiles, so as to appear successful and ready to make the quickest time to any member of a millionaire's family who happens to have appendicitis. I am quite willing to pay $1,116.91 a year to force the End Result System on these Hospital Surgeons, because I rely on my own results to give me the position to which I am entitled. In the meantime, I am paying the price of $1,116.91 a year for remaining in the market as a surgeon.

Competition with the Charitable Hospitals

A surgeon who is fortunate enough to have a good hospital appointment can get his 100 operations to keep his hand in very conveniently; but a surgeon like myself, who does not possess a hospital position, must find other means. He can run a private hospital as I do, where he can do operations for nothing without loss of time, or he can dash about to such private hospitals as take patients for small fees, and to the homes of patients who refuse to go to hospitals. To get his experience, he must bear the inevitable financial loss on his private hospital, or the inevitable loss of time in going from one hospital or house to another to attend scattered patients. And he must take the responsibility and individual care of these patients, which is far more time-consuming than a hospital visit.

I say *inevitable financial loss* for the private hospital, because the Charitable Hospitals spend on their patients an amount that is prohibitory for a poor patient to pay at a private hospital. Thus at the Massachusetts General Hospital, in 1915, $21 a week was spent on each patient. In 1915, the Peter Bent Brigham spent $31.22. And these hospitals pay nothing for taxes, very little for nurses, and no interest for invested capital. I must give what they give *and collect from the patient* before I can begin to make a profit.

This means that a surgeon having the privilege of operating at these places, has a hospital run for him which is better than any

private hospital within the means of most wage-earners. His patients have the benefit of free consultation in all the other departments; he has the assistance of a large and selected Junior Staff, who relieve him of many detailed responsibilities; and he has laboratories, libraries, and every possible facility under the same roof. His money is saved, his time is saved, he can take vacations or visit other clinics when he wants to, and he has many other advantages which the independent surgeon has not,—*particularly in less risk of capital.*

Is it too much for the Trustees to ask him to fill out an End Result Card for each patient? Should he have the privilege of operating on any more cases than he can carefully study, follow, and make sure of relieving? Should the type of man who never records, analyzes, or formulates principles, be permitted to do experiments for his own advantage on the rare or difficult cases which he is unwilling to study and record in detail? Even if he does study, investigate, and write books, should he still have these privileges, unless this study fits him to cure his patients, and he proves that he can and does cure them?

The funds left to a hospital for the sick poor are abused, when they are helping the hospital to compete with private practitioners for *curable* patients able to pay, unless they are first used to prove that the hospital itself gets standard results. Some of these funds could be more properly used to analyze the Product of the Hospital, to see whether the quality of the work of its staff is so much better than that of the average practitioner, that it is better for the public to force the latter to the wall.

The financial report of my hospital for five years is evidence that I alone cannot compete with the Charitable Hospitals, and the Case Report is equally good evidence that I do my work as well or better. I cannot make a living, unless in the future I combine with other physicians, surgeons, and specialists; capitalize; build and equip a large hospital; and force the cliques who run the Charitable Hospitals out into the open, so that the Public can compare our results. And to begin such a combination, we shall have to assume the legal responsibility for carelessness which is now evaded by the Charitable Hospitals, and which still further increases our handicap.

But if this is the only way to make an honest living in surgery, we shall have to do it. We are not going to give up surgery because the Charitable Hospitals *compete* with us, but we shall be glad to retire, if they can *prove* that they deliver better goods to the Public at as reasonable prices. When the results of open competition begin to be published, Clinical Science will be able to divorce Hypocrisy, and Commercialism will not pose as Charity.

Here I am with a good surgical education, ready and willing to give my surgical services to the poor (for the sake of keeping my hand in and my reputation good), and I am not offered an appointment at a large Charitable Hospital. Having once resigned from

the Massachusetts General Hospital as a protest against the Seniority System, I am as isolated as though I had come from another city. I charge that it would be as difficult for a good surgeon from another city to get an appointment on the staff of a Boston hospital as it would for a camel to enter the eye of a needle. But it may be said that a rich man might encompass both, although doubtless he cannot enter the Kingdom of Heaven even by endowing charitable institutions.

A rich man could have a needle made so large, that a camel could enter its eye; and he could also, as I will show, erect a competitive hospital in Boston which on a "No Cure, No Pay" basis would take the rich Back Bay business away from the staffs of our Charitable Hospitals, so that appointments on their staffs would be so little in demand that the Trustees would be glad to give him one.

If each reader of this Report will lend me $1,000 at 5 per cent interest, I will prove that this can be done. Ten thousand copies of this Report will be sent out; each will be read by several readers, but I do not care for more than 10,000 loans. This will give me $10,000,000, which will be enough to start with. I will then organize as follows (for it will be necessary to compete with the actually good organizations of the Mayo Clinic and Battle Creek Sanitarium, as well as with the local impression that the Boston Charitable Hospitals and the Professors of the Harvard Medical School are all they should be, without any End Result System):

I shall advertise extensively to the laity—

"Codman Hospital; Capitalization, $10,000,000; No Cure, No Pay. All kinds of operations done which are likely to result favorably. We are legally liable for carelessness resulting in injury. Fixed Fee, not over $150 for two weeks. (*Half the fee may be paid on the instalment plan.*) We will not treat you, unless we can find out what the trouble is, and unless we believe we can give you relief for at least a year. Send for our End Result Report, which tells what we can and what we cannot do, and illustrates how we shall report your case. Do your share to help make the practice of medicine a science. If we refuse to accept your case, you may have our hospital services at half price, provided you have your own professional attendant and guarantee us an End Result report each year later. We will help you to select a specialist.

"Any physician or surgeon can treat his patients here at half price, provided he will allow us to make a record examination of his patient before treatment, and again a year later. *You will thus insure your own safety by putting your case on record with us.* If you can afford to take the risk of being operated on, your surgeon can afford to take the risk of stating publicly whether he relieved you or not."

Just as will be done in this little hospital, so a big hospital might divide its fees or its income from endowment into lay and professional, and standardize both. The professional expense should

certainly equal the hospital expense, but at present I have to throw in my professional labor on account of my competitors, the Charitable Hospitals. In this hospital, I have to use my judgment in proportioning expenditure. If I give larger nursing salaries, I must give less expensive food or compensate by economizing on some other item. The prevention of waste and the judgment of the proportion which each item should take, in order to be sure of a product —the satisfied and relieved patient—is the essence of good hospital management.

This idea of proportioning the expenditure *to the items necessary to obtain a perfect product* has never penetrated hospital managements. Their minds have been satisfied with *treatment, not* with the *good results* of treatment. The appended table shows how the expenditures were proportioned in this hospital (from August 1, 1915, to August 1, 1916) and in the Peter Bent Brigham Hospital (from January 1, 1915, to January 1, 1916.)

COMPARISON OF PERCENTAGES OF VARIOUS ITEMS OF EXPENSE OF PETER BENT BRIGHAM HOSPITAL AND CODMAN HOSPITAL

		Brigham		Codman	
Adm. Expenses	Salaries	.0748	.1040	.0574	.1510
	Office Expenses	.0088		.0074	
	Telephone	.0082		.0195	
	Misc.	.0122		.0667	
Prof. Care of Patients	Nurses	.1236	.2659	.1629	.2619
	Ward Employees	.0145		.0251	
	Apparatus and Instruments	.0128		.0047	
	Medical and Surgical Supplies	.0503		.0345	
	Alcohol, Wines, and Liquors	.0015		.0031	
	X-ray	.0404		.0092	
	Outpatient Dept.	.0228		.0224	
Dept. Expenses	Salaries	.0815	.2982	.0696	.2719
	Supplies	.0252		.0176	
	Laundry	.0203		.0348	
	Bread	.0084		.0038	
	Dairy Products	.0642		.0452	
	Groceries	.0204		.0276	
	Fruit and Vegetables	.0184		.0264	
	Meat, Poultry, and Fish	.0598		.0469	
House and Property Expenses	Water	.0073	.1907	.0049	.1139
	Heat, Light, and Power	.1282		.0635	
	Insurance	.0034		.0074	
	Maintenance Real Est. and Bldgs.	.0518		.0381	
Items not Comparable	Taxes and Interest		.1412	.1669	.2013
	Janitor			.0344	
	Physicians, Surgeons, Orderlies	.0978			
	Druggists, Clerks, etc.	.0086			
	Ambulance	.0348			
		100%	100%	100%	100%

Explanation: These figures are the percentages of each item to the total expense of each institution. Notice the remarkable similarity. I have to provide, administer, and sell all of these things before I can make a cent. The so-called Charitable Hospital provides all this for the surgeon, and assures him of plenty of practice, all the prestige they can give him, and a fee besides (if one can be obtained); and yet the Trustees take no Inventory of his Product.

This table gives the proportions of expenditure for *treatment,* but not for *product* in the form of relieved and cured, or even cared-for cases. To make a proper balance sheet, the case reports of the two hospitals should be presented. The product could then be compared in quantity and in quality. One of Cushing's successful brain cases would be like a priceless painting, incomparable in value with any of my cases; but a successful inguinal hernia would be no better at the Brigham than at this hospital. It would merely be an ordinary commercial article, requiring so much capital and labor for its making.

If the professors of our medical schools and the appointees of our large hospitals want the loyal support of the pupils they have sent out into practice, they must not compete with them for simple curable cases.

We, the practicing surgeons and physicians of the Community, are glad to have the leaders of the profession given every opportunity for study and research, so that they can make the most of their natural gifts and ambition. We want to have somebody to turn to when we are in doubt of our diagnosis or of our qualifications to give successful treatment. We want to see them get large fees for opinions or services to which their careful study or unusual success in special forms of treatment has entitled them. We are even willing to give up our own fees in unusual poor cases, so that what little money there is can go to the great man, in return for the time he has snatched from his studies.

But what we are tired of is this: of seeing the prestige of the hospitals and the medical schools used by some members of their staffs to line their own pockets, and to help them pose as experts on things in which they are no more expert than we are. We don't wish to see the time which is saved for these men by their hospitals, their assistants, their patients, and their consultants used entirely to make more money. We want *real* contributions to medical science, *real* public demonstrations of new methods advantageous for us to use, *real* efforts to manage our medical organizations, and *real* protection of our legitimate interests in public matters and legislation. We are tired of being criticized by men safely ensconced behind the academic fortifications and bulwarks of hospital prestige. We want honest End Result Reports of these hospital cases which we send in to them.

We believe that natural qualifications, industry in study and experiment, opportunity, and practical experience have to be combined in judicious proportions to make the unusual teacher and leader. We practitioners ourselves have some claim to all of these things, with perhaps an excess of practical experience crowding out study; but still we are constantly learning things which the hospital professor never knows, and we resent his criticism of our habits and customs in the struggle for existence.

Let him tell us what his own results are. If his results are better

than ours, we will ask him to show us his methods; but first we want to be convinced that his knowledge and study are really more efficient than our individual experience. As far as we can see, the cases which we cannot relieve, and which we send to his hospital, are occasionally, but not always relieved. He is welcome to what we cannot cure or relieve, but we resent his taking his valuable time (just to increase his income) to treat cases which we can handle successfully ourselves—just as satisfactorily and with less cost to the patient. He is welcome to our difficult cases, and we are glad to give him the credit when he can cure them.

BALANCE SHEET OF THE COMMERCIAL SURGEON AND HIS CONSCIENCE

Credit	Debit
No obligation to study, teach, investigate, and record, except in so far as such effort may enlarge the scope of his business.	Being obliged to take so much of his time for administration, petty details, and economies, that he has little opportunity for study, travel, and the pursuit of further knowledge.
The opportunity to select his colleagues and assistants, and to cooperate with them for the common purpose of making his institution a success.	The necessity of active competition to retain his practice and keep his hospital beds full, so that he does not lose as well as fail to gain money.
Freedom to refer to others: Difficult and troublesome cases. Cases who cannot pay.	Constant watchfulness to avoid errors which might lead to loss of prestige for his hospital, or even to loss of his private fortune, from a just or unjust legal decision.
A free conscience in undertaking only work he is qualified to do, without being obliged, as in ordinary practice, to make all kinds of goods for the buyers who stray into his hands for articles which he has had no training in making.	The necessity of keeping his fees low, because (if he is honest) he must always admit that if a person has money, he can afford the services of those Hospital Surgeons whose opportunities are greater than his for any particular class of cases.
The opportunity to advertise the goods he is in a position to deliver.	The loss of pride in saying to his patient, "Your case is too difficult for me—go to Dr. So-and-So."
	Being subject to pay the price of advertising—litigation for carelessness; in other words, to risk his capital.

To which side shall we add the End Result System? For this hospital it is distinctly on the credit side,—for it is the purpose of this hospital to force it on the Charitable Hospitals. But when the day comes (as it must, in justice) when it is legally enforced on all hospitals, the Commercial Hospital will put it in the Debit column.

BALANCE SHEET OF THE HOSPITAL SURGEON AND HIS CONSCIENCE

Credit	Debit
Having all the hospital expense given by the endowment.	The obligation to make the most of his opportunities.
Having all the administrative work done for him.	The obligation to teach his students and subordinates.
Having most of the details of physical examination, laboratory tests, dressings, visits, and after-care done by subordinates.	The obligation to be ever watchful for the errors of subordinates over whose appointment he has only partial control.
Being relieved of many interviews with friends and relatives in person and on the telephone.	The obligation to keep up to date with progress by reading, investigating, etc.
Being able to use the time saved in these things for study and visits to other clinics.	The obligation to coöperate with colleagues (who are sometimes uncongenial).
Freedom to experiment without much medico-legal responsibility.	The obligation to experiment.
The acknowledged right to charge rich persons large fees, because of his unusual opportunity to become truly expert.	The obligation to set an example to the students who must get their living by the practice of medicine.
Having access to well-equipped libraries and laboratories, and to the assistance and advice of colleagues.	The obligation to take cases as they come, without selection—usually the riffraff of society, or the most obstinate and difficult diseases to treat.
Having his advertising done for him by the ever-changing stream of assistants, students, nurses, colleagues, visiting physicians, and visiting medical societies, which day after day, week after week, and year after year pours steadily through the hospital.	The obligation to take an active part in local, state, and national medical societies.
	The obligation to see that each case under his care receives attention and his best skill.

To which side shall we add the End Result System? Does he prefer to be known for what he can do, or for what he appears to be doing, says he can do, and teaches should be done? When all hospitals are obliged to add the End Result System, he will put it in the Credit column.

Cheap Operations

Since I have a 10-bed hospital, and have been able to keep only 4½ beds full on the average; since my minimum professional fee is zero; since I actually pay more for expenses than I charge for board, it follows that I am anxious to get patients to operate on. My services have become cheap; for I must be doing surgery, to continue to pose as a surgeon. Unless I have at least a hundred operations a year, I must fall in the race, or else pretend to be what

I am not. It is no charity for me to do these operations; in fact, if I could pay some hospital $10 apiece to let me do a hundred operations a year, it would be less expensive for me than it is at present.

But am I really in any different position from that of my competitors in this respect? Their services have also become cheap. They must go to the Charitable Hospitals, and *pretend* that their services are in demand. They have become dependent on these hospitals for their reputations; if they lost their appointments, most of them could not even run a little hospital like this. They go about to little hospitals, operating for nothing, with a pretense of kindness. The truth is, their services have become cheap. The Charitable Hospital system has been run into the ground, and surgery has become cheap,—so cheap, that the whole Community suffers from it.

The supply of mediocre surgeons far exceeds the demand for their services. Each charges a few wealthy patients for many operations on poorer ones, and the charge is governed, not by the quality of the services rendered, but by the pocketbook of the patient.

No one, be he rich or poor, knows whether he really has the services of a good surgeon. This is because our Charitable Hospitals, *which could do so,* do not find out which surgeons get the best results, and let the public know. A person should be suspicious of a surgeon who will operate on him for nothing. No operation should be done for nothing, even at a Charitable Hospital, because it frees the surgeon of responsibility. Somebody, perhaps the Hospital Funds, should pay for it directly, or exact a sense of responsibility for the result. Services that are rendered for nothing are apt to be *cheap.*

The fact that it is necessary for each surgeon to get a hundred operations a year has cheapened surgery more than surgeons.

If a hospital hired its surgeons, it would not assign its cases by seniority or by the calendar. Services above the average would not be cheap, and the Community would learn that certain operations called for more experienced services than others. Moreover, the Community would demand a penalty for failure due to carelessness.

It is ridiculous that I should be unable to average more than $61.12 for a major operation and three weeks of after-care! This is not enough to elicit a sense of moral responsibility! And yet, in publishing this Report I take more responsibility than the hospital surgeons do.

The Value of My Time

We are apt to think of time as if we had plenty of it. As a matter of fact, we have only about 2,000 hours a year of real working time. Labor Unions and Efficiency Experts alike recognize the fact that long hours reduce the rate of accomplishment and the

quality of the work. Though opinions vary to a certain extent, we may take from the skilled workman the standard of eight-hour days, five days a week, for fifty weeks. Thus, $8 \times 5 \times 50 = 2{,}000$ hours a year.

If a skilled workman needs to conserve his energy for a maximum output per hour, a surgeon certainly should. That a surgeon's hours are irregular, does not justify the overwork in our hospitals (the overwork is not infrequently due to a desire to corner "the material," and those that corner may do it in a hurry) and the consequent damage to the "material."

People should certainly be willing to pay a larger rate per hour for skilled labor on their own bodies than on metal and wood. One dollar an hour is a high wage for a mechanic, but no thinking man would want to pay less, even to the mechanic's helper, when his own body is the material. Yet few surgeons in their early years can sell their time for as much as this, and there are few that do not work more than 2,000 hours. It is several years before a young surgeon can get even $1 an hour,—$2,000 for the year. And many years before he can count on $3 an hour,—$6,000 a year. My own 2,000 hours have never sold for over $5 an hour,—$10,000 a year. Yet I have on several occasions received $1,000 for a single operation.

Society does not expect a prominent surgeon to go about in shabby clothes, to run an out-of-date automobile, or do so much work that he is tired out all of the time. Society exacts subscriptions to popular causes, wedding presents, reciprocative dining; attendance at funerals, and at social events. The greatest surgeon cannot omit some of these things, if he wishes to be known by the people who can pay big fees.

Today, in an American city, he must spend $20,000 a year, if he has a family. If his share of the world's work is 2,000 hours, you must pay him $10 an hour. If he spends half his time at the Charitable Hospital and the Medical School, you must pay him $20 an hour. When you take fifteen minutes of his office hour talking over your telephone about your maid, who is under his care at the Charitable Hospital, you owe him $5!

I have no charitable hospital or medical school to demand my time, but I have to earn over $10,000 to pay the expenses of this hospital before I can make a cent; so that if I can assume that I must also have $10,000 a year to maintain my social position, my time is also worth $20 an hour. But, as a matter of fact, I am glad to work overhours at any time for $5 an hour! Surgeons that are any good are always working overtime—sometimes double time—on account of the competition. This is another abuse of the Charitable Hospital System, which does not separate the wheat from the chaff. If the able surgeons were allowed to excel, they would not have to work overtime.

I should like to have a large salary or earn a large amount of money. Why, if I admit that I really don't need it? I am comfortably off, and what I want is time to get to the woods and streams. But read the "Surgeon's Reward" (page 135). I should miss the daily flattery of my successful cases—and commendatory letters about the End Result System. I want more money, so that I can spend more on my hobbies. I want more cases to keep my hospital full, so that I can keep on putting numbers on the chart and scoring them with red ink, to show that they were good products. I want new kinds, so that I can put them in the spaces that have no numbers, just as I used to put stamps in my stamp book,—not printed counterfeits.

I know that I shall die unsatisfied, with many spaces empty or not scored as perfect. I know that some day, in order to keep the successful spots coming on the chart, I shall have to ask others to do the operations and see them get the grateful looks.

The Value of An Operation

There are certain conditions under which an operation will save life. The financial value of such an operation will depend to a certain extent on how much the person who pays the bill values the life that is saved. It depends on whether it is your own life (and how much you enjoy it), your wife's life (and how much you care for it), or some "poor relation's" life (and how worthless you think it is).

From this point of view, one can see how hospital Trustees value their patients' lives, for they do not pay the surgeon for the operation. On the contrary, *they pay the surgeon by the opportunity to do the operation.*

The same may be said of those operations which do not save life, but merely relieve suffering. Most persons value an operation which relieves their suffering more than one which saves their life. And they value the relief of the suffering of their poor relations—somewhat, but not much.

And Trustees of hospitals, as a rule, value the relief of the sufferings of their patients so little, that they do not even insist on following up their patients to see whether their sufferings are relieved.

Nevertheless, one hears of enormous fees being paid for operations. Why should one surgeon get a higher fee than another?

The best operator in the world is undoubtedly a better operator than I am, but what is the money value of the difference, when it comes to a single operation on an individual patient?

I have done about 3,000 operations to his (perhaps) 30,000. Yet to an individual patient, what difference would there be in the chances? I have done perhaps 300 interval appendectomies without a fatality, and he has done perhaps 3,000 (with probably one or two fatalities). For other kinds of routine operations I can make

the same boast. What, then, is the financial value of the difference in risk in my hands or his?

But consider those grave cases listed on pages 143–155. It is in such cases that the difference would show. Undoubtedly he would have saved some of those cases, and, if there is a difference in value between our services, it would be shown by the proportion which he would have saved. He might have saved 5 per cent, 10 per cent, or 50 per cent, but the value of his services compared to mine would vary with this percentage—but only in these extremely sick cases.

If you needed an operation, you might be willing to pay $1,000 more for a 1 per cent better chance, but how much more are you willing to pay for an increased 1 per cent chance in the case of your poor relation?

The Trustees of the Massachusetts General Hospital showed their interest in their patients by allowing me to operate on that list of cases when I was first appointed on their Staff,—and you will find the same state of affairs in almost all the large hospitals in this country.

The difference in surgeons' results is not as demonstrable as in their incomes. When you pay a high price for an operation, you pay not according to the value of the operation to you, nor according to the difficulty of the operation, nor according to the real ability of the surgeon, but according to the relation of the surgeon's reputation and your own bank account.

The proper way to pay for a successful operation is to pay the surgeon a reasonable sum for his expert labor, and then give a large sum to some endowed institution for the advancement of surgical science. You owe much more to surgical science than you do to the surgeon.

Has This Hospital Been a Success?

A Success is the attainment of an object. The main object of this hospital has been to force the great Boston Hospitals affiliated with the Harvard Medical School to adopt the principles of the End Result System.

It was necessary to demonstrate the feasibility of this End Result System, so that Trustees who must always be conservative, may have an example to follow.[1]

It was necessary to demonstrate that the Public are willing to have the facts about their cases published for the good of others.

It was necessary to show that surgeons and their consultants may be willing to have their failures and errors known.

It was necessary to show that a man who practices this doctrine can make his living and keep out of the courts.

It *will be* necessary to show that End Result Reports of hos-

[1] Trustees must avoid criticism. At present they would fear criticism, if they should introduce so radical a change. We want to put them in a position where they will fear criticism, unless they do introduce it.

pitals are of enough value to the Medical Profession to pay for their publication.

Finally, it *will be* necessary to prove that a "No Cure, No Pay Institution" can be run on a definite standard of fees, and be able to pay a dividend to its stockholders. (See "The Dividing Line between Medical Charity and Medical Business." N. Y. Med. Rec. May 13, 1916. By E. A. C.)

We believe that we have demonstrated all these things except the last two. We admit that we have not yet made a financial success of the hospital; but, as shown in Part III, we are now going to bend our energies to so doing.

Aside from these great primary considerations, are there not other respects in which this hospital has been a success? Has it not furnished an opportunity to our employees to make an honest living? Has it not done something in teaching all the patients, doctors, nurses, and employees who have come into contact with it that a frank confession of our ignorance, and acknowledgment of our errors and shortcomings, is possible in surgical practice? Is it not fair to claim that its success is in some degree measured by the facts:

That the Massachusetts General and Peter Bent Brigham Hospitals in their Annual Reports now publish abstracts of the cases which die while under their care?

That an Abstract Report was made of all the cases operated on before the Clinical Congress of Surgeons of North America, at its meeting in Boston, and that another one is to be made of the meeting in Philadelphia?[1]

That the Massachusetts Medical Society now has a Section on Hospital Administration, and has recommended uniform Hospital Reports?

That the Surgical Staffs of the New York Hospital and the Presbyterian Hospital and the University of Pennsylvania Hospital hold weekly meetings at which the results of their cases are reviewed and criticized?

That the American College of Surgeons has obtained a large fund for an investigation of hospitals?

And will it not mean some measure of success, if this Report is distributed to all the members of the American College of Surgeons and to all the members of the Massachusetts Medical Society, without the writer's receiving a vote of censure or a request for resignation from any of the following Societies of which he is a member?:

American Medical Association.	Society of Clinical Surgery.
American College of Surgeons.	Massachusetts Medical Society.
American Surgical Association.	Various local medical societies.

[1] Unless the surgeons of Philadelphia are afraid to stand comparison with those of Boston!

Neither the Corporation of Harvard, nor the Trustees of the Massachusetts General Hospital, for whom I worked for years, have ever sought my advice individually or collectively on this subject. I have never talked with a Trustee of the Massachusetts General Hospital on hospital matters, either before or since my resignation. I never knew one to show the slightest interest in the End Result System.

Yet, strangely enough, I shall never myself regard this hospital as a success, until the Trustees of the latter institution ask my advice about something. So great is the Conservatism of this Board, that I am convinced that the only way for me to show them anything is to show it first to the rest of the world, and then let the rest of the world show it to these Trustees.

Richard Cabot had to do this with the Social Service Idea.

Before making a New Organization to Demonstrate the Financial Soundness of the End Result Idea, it is first necessary to consider

Why This Hospital Has Not Been a Financial Success

The following five reasons occur to me:

1. I have exhibited a Cartoon at a local medical meeting, and in fact publicly alleged:

> That Harvard pays her medical teachers for the most part by opportunity to practice among the richer people of the Community,—the Back Bay.
>
> That the large Boston Charitable Hospitals are used as experimental clinical laboratories where, by cornering "the material," the "Harvard Ring" are able to keep themselves "the best doctors" in our Community.
>
> That they shirk the "End Result System," although they know it to be logically sound, because it is not "expedient," and would militate against the "Vested Interests."
>
> That it is only fair for them, if they claim superiority, to make public the records of their clinical experiments, to give the rest of us maximum standards.

Is it any wonder that after this, my former colleagues do not patronize my hospital?

Do you blame them for spreading and exaggerating the unfortunate facts that I am not a skillful operator, that I am hard to get along with, aggressive, independent, idealistic, and a monomaniac on the End Result Idea? Even my friends damn me with faint praise.

A surgeon never really knows how poor a surgeon he is. No one could have been more surprised than I was, when the Surgical Staff, the Executive Committee, and the Board of Trustees of the hospital which I had served for years agreed that another surgeon deserved promotion more than I did. Even now I am not convinced.

But, at any rate, the fact that I was not promoted, is well known among any possible Back Bay consultants and among my friends and relatives, most of whom are well-to-do. Naturally they cannot risk themselves and their families in my care, when better operators are available. And besides, I will not accept their cases, if they are difficult, because now I am authoritatively assured that I am not qualified to undertake them.

2. But as they have not yet reappointed me, and until then, therefore, I have no right to the rich patients, I must lower my prices and try for those of moderate means. The fact that I served so many years at the Massachusetts General without being dropped, and that I am still honored with membership in the societies mentioned on page 131, makes me feel justified in regarding myself as at least a mediocre surgeon.

But how can I get patients of moderate means? I meet in competition the Junior hospital surgeons, the assistants of the big surgeons, as well as the lone surgical pirates who, without hospital appointments, do privateering and possibly fee-splitting.

Is it likely that any of these competitors will say a good word for me? They much prefer to call in consultation, when they are in trouble, the Big Hospital surgeons, who believe that it is right for them to "back up" consultants who have undertaken operations they had no business to do. As a young surgeon, if my cases went wrong, it was the man whose reputation would carry weight with the family that I wished to help me out, not the one who would put down my error in a book and publish it! So, *without advertising directly to the patient,* this hospital is not likely to find many consultants. It has been a wonder to me that my few faithful friends and consultants have stuck by me so far. It would only need a few more to fill my beds and give me power to force the situation.

3. There are also, perhaps, some personal reasons,—perhaps I have not worked hard enough, been gracious enough, or taken enough personal interest in my patients. I can only say that I have been able to earn my living outside the hospital and to run the hospital fairly satisfactorily to the patients (thanks to my Superintendent, Mrs. Freeman). During the last year there has been a total increase of business of 25 per cent over the preceding year (1916 over 1915). This seems a fairly normal increase of personal practice.

4. I have been inefficient in my advertising. My previous Hospital Reports have hitherto brought me but one case. My Reports have been widely read, as I know by letters of congratulation and encouragement, but no patients are sent on account of them. The patients have *come from personal friends or other patients,* exactly the sources I least approve of, as such persons are least qualified to judge of the real efficiency of the institution. It is most illogical to go to a doctor, because you like him; or to a surgeon, because you trust him. When the End Result System is well seated in the saddle,

you can select a surgeon because he has demonstrated his ability to relieve cases similar to yours; and it is for his interest to relieve you, and not to attempt to, if he cannot make good. I want people to come to this hospital for the same reason that one goes to a certain grocer,—because he delivers standard goods, not because one likes him.

When these Reports grow to cover large numbers of cases, they will attract consultants and patients, but now they merely show what a one-horse institution this is as compared with the Charitable Hospitals. From the expediency point of view, I have been inefficient in my advertising, (for I consider that truthful advertising may be an honest act, and recommend it to the Charitable Hospitals, which have nothing to lose by being honest).

5. Last year the deficit was caused by shutting down the hospital for two months, so that I could take some vacation, write the last Report, and prepare the Report of the Committee on Hospital Standardization of the Clinical Congress of Surgeons. Much of this time was spent on thinking out the method of classification illustrated in the chart inclosed in this Report. There has also been much time taken in correspondence about this and other public matters. After the new organization and the inclosed declaration of aggressive war on Harvard and her affiliated Hospitals, this energy is going into business for faithful managing of the affairs of the stockholders. If Truth prevails, we shall win even against Harvard, which is no worse than all other American Universities. It would, perhaps, be a good thing for Harvard and her affiliated Hospitals, if I had a fine army of efficient colleagues to enforce the End Result System.

Having thus considered the reasons for our lack of Financial Success, we can make the following good resolutions for the future, and thus increase our business:

1. To publish no more cartoons.
2. To advertise directly to the laity.
3. To continue to employ the same superintendent.
4. To issue no more Reports, unless they are paid for.
5. To shirk committee work for national medical associations.

In other words: To Mind Our Own Business.

Thus I shall merely manage the End Result Idea for those who believe in it enough to want a Report for a dollar, or to loan money at interest to enlarge the hospital.

This hospital would be a failure, if I accepted gifts and endowments. It must be self-supporting to succeed. The public must want honest surgery and be willing to invest in it. Many of my friends and acquaintances are among the richest people in this Community, yet to borrow $100,000 on a business basis would be more difficult for me than to beg the amount for a charity! They would continue to *give* money to prolong the reign of King Humbug rather than *invest* money in an institution whose only chance of

success rests on the hope that some of the public are weary of his reign.

In the Event of Financial Success

Last year I did at this hospital 74 operations, at an average of $61.12 apiece. Suppose I should become a popular Back Bay surgeon and should get $500 apiece for 74 operations next year (a few of my patients actually do value my services at this amount). My professional income would be $37,000.

How would this help me?

I could not give a more perfect illustration of the End Result System than I have already given in this Report!

But I could make the End Result System fashionable!

The Charitable Hospitals would adopt it!

Harvard would have to O. K. it.

Colleagues and assistants would flock to my Standard!

A Surgeon's Reward

The great surgeons of the world have certainly seemed to receive compensation, if we may judge by the ordinary standards of wealth, honor, and power.

They have been chosen as presidents and executive officers of medical and surgical societies; they see their names mentioned in countless special articles and text-books; their original contributions are credited for generations to come; they are honored by lay positions of trust and by academic degrees; they are the center of all eyes in their operating theaters; and they accumulate more wealth than they have time to enjoy. But these are not the real rewards which compensate for their untiring effort, and for the many worries and the petty frictions which mar their days. Why does a surgeon dread retiring from practice? Why do the older men cling to their hospital positions so tenaciously?

The surgeon's reward is the daily pleasure of seeing the proof of his knowledge and skill as revealed in his convalescent patients.

Imagine the pleasure which a busy surgeon has daily in the convalescent smiles of ten to twenty happy patients, each of whom feels he is indebted to that surgeon for his recent escape from the jaws of death. The flowers, the blue ribbons, the pink dressing wrappers, and the first shave add to this pleasant experience in proportion as the patients are attractive, interesting, rich, or prominent. Then add a hospital visit, with a trail of admiring students, nurses, and visiting doctors, and fifty or sixty more or less grateful patients.

The wonder is that any surgeons have time or inclination to consider the joyless part of their lives, made up of professional honors, medical societies, sitting on platforms, keeping up the standards of their hospitals, wearily writing papers and text-books, or making original observations which will destroy their conservative

reputation in this generation, and only be recognized by the next. Yet our Hospital Trustees the Country over continue to put a premium on neglecting these joyless but essential things. It is only the giants like Crile, Cushing, Brewer, and Edward Martin who can do all these weary things and still have energy enough left to beat their "practical" competitors at their own games.

When will Trustees realize that hospital opportunity is essential to the surgeon, and make him pay for it with some effort for the general good? Do they deny that study, care, thoroughness, and scientific analysis have more to do with the efficiency of a surgeon than his popularity and dexterity? Surely it is time to bury the old ideas of "nerve," "steady hand," and "graceful" operating, and to teach the public that knowledge of surgical science and steadfast care and judgment in applying it make the surgeon of today.

Eccentricity

Persons are called eccentric, when their expressed view or behavior is distinctly different from the average, whether in hospital management or other affairs in life. Eccentricity is almost a term of reproach, but it is not quite so, for to be different from the average, one need not necessarily be below it. The eccentric whose eccentricity is eventually proved correct may in time become a conservative. Eccentrics are generally obliged to publish their own literature (as I do these Reports). It would be useless to offer them to the *Boston Medical and Surgical Journal.* The Editors do not care to contradict anything I have said in these publications, nor have they questioned the accuracy of any statement. *They know that my contentions are correct,* but they would not print them, because they fear the disapproval of those conservative and vested interests which control the Harvard Medical School and its affiliated Hospitals.

It is true that I am an eccentric from the Massachusetts General Hospital,—that I flew away from the center. So did Thayer, Finney, and Cushing to Baltimore; Moffatt and Lucas to San Francisco; Robinson and Hedbloom to Rochester; Murphy to St. Louis; Kidner to Detroit; Whiteside to Portland; John Little to Labrador, and a host of others to other places. I am, perhaps, less eccentric, since I have remained in sight of the Massachusetts General Hospital. What a hospital might have been made with these men, if we had kept them! How it might have turned the tide of sacred pilgrimage from Rochester, Minnesota, if we had monopolized Clinical Truth, instead of letting the Mayos do it! There were, of course, many reasons why these men left, but one, I venture, weighed heavily with every one of them,—they had no desire to stay in a seniority line for the ultimate privilege of keeping the young men down as they were kept down by their seniors.

However, the eccentric quality of a Seniority System is perhaps its best argument. It may be a good system that drives away the

ambitious young men, and keeps the ones who are tame enough to let those in front pull them up, and those behind boost them up, but I do not believe it is.

So I am called eccentric for saying in public:

That Hospitals, if they wish to be sure of improvement,

1. Must find out what their results are.
2. Must analyze their results, to find their strong and weak points.
3. Must compare their results with those of other hospitals.
4. Must care for what cases they can care for well, and avoid attempting to care for cases which they are not qualified to care for well.
5. Must not pretend that work which they do as a competitive business is Charity.
6. Must assign the cases to members of the Staff (for treatment) for better reasons than seniority, the calendar, or temporary convenience.
7. Must teach medical students ethics by example instead of by precept.
8. Must welcome publicity not only for their successes, but for their errors, so that the Public may give them their help when it is needed.
9. Must promote members of the Staff on a basis which gives due consideration to *what they can and do accomplish* for their patients.

Such opinions will not be eccentric a few years hence.

Offers to Charitable Hospitals

In retiring to a private hospital, I am not unwilling to do charitable work. I will accept any position on the Surgical Staff of the Massachusetts General or Boston City Hospitals, provided that the End Results of the cases which are submitted to my care are considered in comparison with those of my colleagues whenever there is a question of promotion.

If the Massachusetts General Hospital will reappoint me to my former position, I will provide the salary for an End Result Clerk to make out End Result Cards for all the cases which have been treated at the Hospital since the beginning of this century.

I will do 100 operations a year at any Charitable Hospital—for nothing. Or, I will do 300 a year for $25 an operation, and no operating outside the Hospital. Or, I will do 200 or less for $10 an operation, provided I may do private practice as well.

If any of our Charitable Hospitals, by an analysis of the End Results of their cases, find that the Results of any particular class of surgical cases are unsatisfactory, I will undertake to take charge of such cases and make them more satisfactory.

If the Trustees of any of our Charitable Hospitals empower me to do so, I will organize an End Result System suitable to their

needs, which will permit them to keep a definite record of the therapeutic efficiency of their whole organization, and of the individual members of their Staffs. But, in order to do this, I must be empowered to insist that all doubtful cases must be referred to me for operation, or for assignment to that member of the Staff who in my opinion is best qualified to care for each particular case.

An analysis of my results at the Massachusetts General Hospital and at this hospital shows:

(1) That I had no deaths in cases of hysterectomy for fibroids of the uterus.

(2) That in surgery of the gall bladder I have had 10 deaths.

I should, therefore, like to offer my services to any hospital

(1) Either to do hysterectomies for fibroids, which I can prove I do satisfactorily, or

(2) To do gallstone surgery, which I am interested to study for the sake of my own improvement, and because there is much for all surgeons to learn in this branch of work.

If any Charitable Hospital has a high mortality in its night emergency work, I should be happy to take charge of it, and will guarantee to improve the percentage of mortality during the next year, and the general character of the results in those who survive.

But I ask for these positions. Emerson says: "The highest price one can pay for a thing is to ask for it."

Altogether, I am unwilling to serve any Hospital under a Seniority System, because such a system assumes that I have something to give to the Hospital, not something to get out of the Hospital. "A fair exchange is no robbery." It saves the Trustees trouble to have a Seniority System. It is a wholesale bargain, and saves effort, —and therefore cannot be the best. Why not make some individual bargains? I have made some tentative offers, and I will accept that position which seems the most to my interest, and the one for which I can best arrange. Trustees save themselves much trouble by letting the doctors seek the Hospital, rather than having the Hospital seek the doctors. The one allows the doctors to take their pay out in experimenting on the patient; the other means that the Trustees would pay the doctor for taking their responsibility.

Now no Trustees will accept these offers. They neither wish to make sure that all their patients are relieved nor that they are all studied. They wish to go on in the same old way, and not be bothered. "Let the Staff run a monopoly, if they are smart enough to do it; to succeed, they will have to take care of the patients." Thus thinks the hard-headed business man.

Nothing illustrates the vanity of this Pretense that Surgeons operate at Hospitals for Charity better than the fact that I am not only ready, but glad to operate for nothing on any Charitable Case at any Charitable Hospital. Ask your Staff to let me operate for a month, and see how indignant they will be. Ask them to give me a

chance to examine and select to operate on (if I think the chances good and the patients are willing) all cases in which they advise against operation!

The Proof That the Writer Deserves an Appointment at a Charitable Hospital

The following is an attempt to show that it is possible to rate a surgeon by the results which he obtains in those cases that are intrusted to his care. For fifteen years the writer served as assistant visiting surgeon to the Massachusetts General Hospital. During this period a great variety of surgical cases were intrusted to him for operation. At this time eighteen surgeons were on duty, and each operated on approximately the same number and variety of cases, and little attempt was made to select the best surgeons for the most difficult cases. In fact, the reverse was the case, for in general the emergency cases which came in at night or during the afternoon hours, were operated on by the younger and less experienced men, who gladly availed themselves of the opportunity, while their busier seniors were attending to their private practice or resting.

These emergency cases, as a rule, were the most difficult possible cases to operate upon. They were usually "last resort" operations, requiring the keenest surgical judgment and intuitive ability (which only experience can cultivate) to make "snap diagnoses." If any kind of cases demands speed and manual skill in operating, these traumatic and septic emergencies certainly do. A hospital which was organized to obtain the best results, could not possibly allot such cases to its less experienced surgeons. However, the writer, like all other ambitious surgeons, was glad of the opportunity, and availed himself of it to the best of his ability. Even now, at forty-seven, he would be glad to have the same chance.

If the records of the hospital during these fifteen years are examined, they will show that the cases on which I operated were 1,741 in number,[1] and that they represented as large a proportion of difficult cases as those of the other surgeons.

Would it be possible to compare the records of each of these surgeons with mine, and to determine by the End Results which was the best surgeon? Of course, in each surgeon's practice this hospital work formed only a proportion, and it would be quite possible to argue that even if my results in the Hospital proved to be better than those of some other surgeon, he might have done much better work outside of the Hospital. My contention is, that even if this were the case, it would make no difference as far as the efficiency of the hospital work was concerned; that no matter how popular, how painstaking, how skillful the surgeon might be in his private practice, these virtues would not condone for good-natured slackness in discipline, carelessness, surgical gymnastics and dis-

[1] Many of these had several operations at the same time, and many others were operated on two or more times.

play, hurry, and neglect of disagreeable essentials in his hospital work.

To make the whole hospital efficient, it is necessary to have a Staff who not only *can* be, but *are* efficient.

As it is impossible for me to present the entire End Result Record of all the cases operated on by the eighteen surgeons for fifteen years, I can only base my argument on the consideration of my own record. Unfortunately, as explained previously, I cannot even present the End Result Record of my own successful cases. However, there can be no objection to my publishing the results of those of my cases which did not survive, and so I base my argument on the corollaries taken from abstracts of these cases. By a consideration of all those cases which died after my operations, I propose to show that my standards of surgical skill, surgical judgment, surgical care, and of those qualities which contribute to successful results in surgical cases, were of the highest order.

I claim that I had a minimum number of preventable fatalities, and I challenge any one to show that any other surgeon who operated at the hospital during these fifteen years had as few in proportion to the number of difficult cases which were successful.

I claim that in almost all of the cases in the following list, the cause of death was *the patient's condition or disease,* and *not* my *errors* of *diagnosis, skill, judgment, or care.* 107 of the 141 were grave emergencies.

I claim that by a consideration of the records of these cases, a committee of surgeons (who had no personal interest in the matter) could tell that I had *no* deaths, during fifteen years' service, that were criticizable because of carelessness, neglect, lack of skill or judgment, or other obviously preventable cause. No cases where death was due to hemorrhage, sepsis, shock, anæsthesia accidents, lack of manual dexterity, anatomical knowledge, surgical instinct, pre-operative care, or even diagnosis or other preventable error, will be found in this list, unless the patient was in a very serious condition before the operation.

Now if I served all these years, and did approximately 2,000 (many cases were operated on more than once) more or less serious operations without losing cases in which the pre-operative condition was not serious, it proves that I was a careful, painstaking, competent operator. If any blame can be placed for these deaths at all, it must fall on the organization which permitted the assignment of such grave cases to so inexperienced a man, appointed through nepotism!

It seems to me that I could hardly offer better evidence than this of my right to an appointment at a Charitable Hospital. Possibly the presentation of the abstract of all those cases which survived might be considered more reliable evidence, but to my mind this negative evidence is superior as demonstrating true surgical ability. If the positive evidence is desired, the Trustees of the hospital should

have it in their records! They should be able to tell to what extent those cases which survived after my operations were benefited!

How is any member of the Staff to realize that for the good of the hospital he should resign? He can only be sure of one, to him important, thing—that if he does resign, it will mean loss of prestige, loss of practice, and the end of his career as a surgeon. I have been through part of this experience during the last two years, but by assuming the financial burden of this hospital, I have been able to cling to my ambition to be a good surgeon. My opportunity to be a *great* surgeon has gone, unless some large hospital will give me *opportunity for manual practice.*

If I can make such an analysis of my cases, why could they not do it at a Charitable Hospital when there is question of promotion?

In connection with reforms in most large hospitals, one often hears "They" spoken of. "They" usually leave things undone. It took a long time for me to realize that "They" meant "We" or "I," or any one that was interested enough to do the things for their own sake, without reward.

The existence of this illusive "They" in a hospital is a sure sign of the need of an Efficiency Committee. "They" should suggest the resignation of the incompetent!

DIAGNOSES OF THE 141 CASES WHICH DIED AFTER OPERATION BY E. A. C. AT THE MASSACHUSETTS GENERAL HOSPITAL DURING THE YEARS 1900 TO 1914 INCLUSIVE

102 Emergencies	Suppurative Appendicitis		23
	Intestinal Obstruction from Cancer		5
	Intestinal Obstruction from Other Causes		
	From Adhesions and bands	3	
	" Mesenteric thrombosis	1	
	" Tuberculous stricture	1	
	" Meckel's diverticulum	2	
	" Volvulus cecum	1	
	" Undetermined	1	—9
	Septic Conditions		
	Abscess of cheek	1	
	Pelvic abscess (fecal fistula)	1	
	Pelvic abscess (vaginal drainage)	1	
	Unknown peritonitis	1	
	Abscess of neck (enteritis)	1	
	Acute pericarditis	1	
	Abscess of neck (D. T.'s)	1	
	Acute pancreatitis	1	
	Acute endocarditis	1	
	Pneumococcus peritonitis	1	
	Acute pancreatitis (mania)	1	
	Abscess of liver (?)	1	—12
	Other Conditions		
	Skull fractures	8	
	Crushed or septic legs—Amputations	7	
	Multiple injuries	3	
	Traumatic tetanus	4	
	Fractured spine	2	
	Ruptured or perforated viscera	19	
	Strangulated hernia	8	
	Tuberculous peritonitis	1	
	Transfusion for ruptured liver	1	—53
39 Other Operations (including 3 emergencies for cancer of stomach and 2 emergency gallstone cases)	Operations for Cancer of Stomach		7
	Other Operations for Cancer		
	Uterus	2	
	Breast	1	
	Lower jaws	1	
	Sarcoma intestine	1	
	Lip and neck	1	
	Upper jaws	1	
	Duodenal papilla	1	—8
	Complicated or acute gallstone cases		6
	Operations for Various Other Conditions		
	Chronic appendicitis (?)	1	
	Cleft palate	1	
	Ventral hernia	1	
	Contracture from burns	1	
	Cirrhosis of liver	1	
	Huge renal calculi	1	
	Multiple pelvic operations	1	
	Stricture urethra (perineal section)	2	
	Gasserian ganglion	1	
	Hydrocele and Hernia (Pneumonia on 45th day)	1	—11
	Gastric and duodenal ulcer (chronic perforation)		7
			141

All patients whom I operated on, and who died in the Hospital, are included, even if operated on also by other surgeons, or by house surgeons under my direction. Let the reader compare these abstracts with the abstracts of deaths in the last three Massachusetts General Hospital Reports.

SUPPURATIVE APPENDICITIS

1. Apr. 29, 1900. E. S. 370–98. Male—22. Abdom. pain and vomiting for 7 days. General peritonitis. Op. E. A. C.—Median incision. Washed with salt sol. Died same day.
2. July 23, 1900. E. S. 374–140. Male—14. Abdom. pain 4 days. General peritonitis. Op. E. A. C.—Pus and fibrin in peritoneal cavity. Appendix gangrenous. Death on 2d day.
3. July 25, 1900. E. S. 374–146. Male—27. Sick 2 weeks. Violent abdom. pain 24 hrs. General peritonitis. Op. E. A. C.—Bowels injected; covered with fibrin and pus. Appendix gangrenous. Died in 24 hrs.
4. Aug. 15, 1900. E. S. 372–204. Female—15. Abdom. pain 5 days, and vomiting 2 days. General peritonitis. Op. E. A. C.—Seropurulent fluid. Appendix gangrenous. Death on 6th day.
5. July 2, 1901. E. S. 388–238. Female—13. Abdom. pain, etc., 4 days. General peritonitis. Op. E. A. C.—Median incision, free pus. Appendix gangrenous. Died in 24 hrs.
6. Aug. 24, 1901. E. S. 394–133. Male—19. Abdom. pain, etc., over 48 hrs. General peritonitis. Op. E. A. C.—Free turbid fluid. Ulcerated appendix. Death in 5 days.
7. Aug. 30, 1901. E. S. 394–160. Male—17. Abdom. pain, etc., for 6 days. General peritonitis. Op. E. A. C.—Appendix gangrenous; near liver. Death on 7th day, probably from perforation of subdiaphragmatic abscess into lung.
8. Aug. 30, 1901. E. S. 394–158. Male—7. Had been operated on by another surgeon on 11th day of attack, Oct. 19, 1899. Abscess was drained without finding appendix. Re-entered Aug. 30, 1901, on 5th day of another attack. Op. E. A. C.—Large slough in place of appendix. Death on 6th day.
9. Sept. 6, 1901. E. S. 392–136. Female—5. Abdom. pain, etc., 4 days. General peritonitis. "Child lying in stupor." Op. E. A. C.—Free pus everywhere. Appendix too buried to attempt removal. Enterostomy. Died in 2 hrs.
10. Sept. 19, 1901. E. S. 394–234. Male—37. Abdom. pain, etc., 4 days. General peritonitis. Op. E. A. C.—Enterostomy without attempting to remove appendix. Drainage. Died on 2d day.
11. Mar. 12, 1902. S. S. 126401. Male—10. Abdom. pain, etc., 6 days. General peritonitis. Op. E. A. C.—Fecal contents washed from stomach. Abdom. full of pus. Gangrenous appendix. Enterostomy. Died same day.
12. Aug. 9, 1902. E. S. 128468. Female—8. Abdom. pain, etc., over 48 hrs. Localized appendix abscess in pelvis. Op. E. A. C.—Appendectomy and drainage. On 10th day operated on again for post-operative obstruction in ileum. Died on following day.
13. Aug. 9, 1902. E. S. 410–185. Female—42. Abdom. pain, etc., 7 days. General peritonitis. Op. E. A. C.—Enterostomy and drainage under local anæsthesia. Death in 24 hrs.

14. Dec. 26, 1902. W. S. 130361. Male—21. Abdom. pain, etc., 4 days. General peritonitis. Op. E. A. C.—Free pus; fibrin on bowels; gangrenous appendix. Enterostomy. Died on 2d day.
15. July 17, 1903. E. S. 133202. Male—9. Abdom. pain, etc., 3 days. Op. E. A. C.—General peritonitis; gangrenous appendix. Two later ops. for drainage of secondary abscesses—pelvic and subdiaphragmatic. Death after the latter on 20th day.
16. Mar. 25, 1904. E. S. 136662. Male—38. Abdom. pain, etc., 4 days. Op. E. A. C.—General peritonitis; gangrenous appendix. Died on 8th day. Subphrenic abscess?
17. Aug. 1, 1904. E. S. 138518. Male—18. Abdom. pain, etc., 5 days. General peritonitis. Op. E. A. C.—Intestines red and coated with fibrin, etc. Died on same day.
18. Dec. 28, 1905. E. S. 145774. Male—54. Abdom. pain, etc., 5 days. General peritonitis. Op. E. A. C.—Free pus, etc. Died on 4th day.
19. Oct. 28, 1907. E. S. 155466. Female—9. Abdom. pain, etc., 24 hrs. Op. E. A. C.—Free pus in abdomen. Perforated appendix removed; drainage. Two days later op. by F. B. Harrington—Further drainage. Death on same day.
20. Jan. 17, 1908. E. S. 156660. Male—26. Abdom. pain, etc., for 7 days, but severe for only a few hrs. Op. E. A. C.—Turbid abdom. fluid. (Streptococci.) Appendectomy. Large wound for general exploration. Protrusion of bowel on 2d day. Wound broke down. Death on 6th day.
21. Oct. 14, 1908. E. S. 160677. Male—77. Abdom. pain, etc., for 4 days. Op. E. A. C.—Appendix abscess containing 10 ounces. A perforation located in posterior wall of cecum, probably in adherent appendix. Drainage without search for appendix. Died in 24 hrs. Autopsy showed appendix had sloughed away.
22. Mar. 1, 1909. S. S. 162684. Male—45. Abdom. pain, etc., 7 days. Some jaundice. Op. E. A. C.—High appendix in wadded omentum removed. Thickening and induration about portal vein noted. Pylephlebitis? Died next day.
23. Dec. 18, 1912. E. S. 186626. Male—17. Abdom. pain, etc., 5 days. Large indurated abscess. Op. E. A. C.—1st incision in rt. loin. During manipulation abscess suddenly collapsed—evidently discharging into bowel. Abscess cavity, when opened, contained but little pus and a gangrenous appendix. A second anterior incision was made and through and through drainage established. A fecal fistula resulted. Death on 12th day from pneumonia which began on 10th day. Perhaps subphrenic abscess.

Note on Suppurative Appendicitis

It will be observed that fourteen of these twenty-three cases were lost before 1903, or during the first three years of my service, and that during 1909–1914 I lost only one case.

This is a reflection on organization, not a compliment to my ability. During the period from 1900–1908, Murphy and Ochsner were having their famous battle in regard to the proper treatment of general peritonitis, and I was keenly interested, and never failed to take the chance to operate for this condition. I often operated on cases which had been passed by my seniors. Examination of the hospital records will show that during this period many other cases, almost as severe in type as these, recovered after my operations. I was among the first to use the principles advocated by Ochsner, and among the first to find that perforation of a duodenal ulcer must always be considered in cases of general peritonitis.

The treatment of these cases has improved greatly since those days. The use of rubber gloves, wet gauze, and cigarette wicks has diminished the

chance of post-operative obstruction, and we now know how dangerous pre-operative and post-operative catharsis is. A few of these cases I could probably save now, if I could do them over again, but the difference would be due to the general advance of surgery rather than to my own increased skill.

For instance, in Case 25, after end-to-end anastomosis of the sigmoid, a cathartic and an enema were given on the second day! Now, I should not attempt to move the bowels for a week. In those days it was customary to give calomel on the second day. It is my belief that many cases died from this cause.

INTESTINAL OBSTRUCTION FROM CANCER

24. July 15, 1901. E. S. 390–194. Male—32. Chronic obstruction with increase of symptoms. Op. E. A. C.—Free, dark red fluid. Large tumor of bowel resected; intestine torn in so doing. (Sarcoma.) Enterostomy. Died next day.
25. July 22, 1901. E. S. 390–230. Male—50. Obstruction for 5 days. Op. E. A. C.—Excision of cancerous stricture of sigmoid. End-to-end anastomosis. Death on 4th day—leakage.
26. Nov. 18, 1905. E. S. 528–26. Male—54. Chronic obstruction with acute symptoms. Op. E. A. C.—Cecostomy for cancer of hepatic flexure. Lived 12 days. Autopsy: Septicemia. Inoperable cancer with metastases.
27. Aug. 22, 1906. E. S. 149101. Male—35. A cachectic case previously operated on by two other surgeons by drainage of an ischio-rectal abscess and cecostomy. Op. E. A. C.—More complete drainage of abscess. Died 5 weeks later. Autopsy showed high cancer of rectum, pneumonia, and septicemia.
28. Oct. 2, 1909. E. S. 166158. Male—38. Hematuria and obstruction of bowels for 2 days. Distention. Op. E. A. C.—Drainage of ascitic fluid. Extensive malignant disease of unknown origin. Nothing done. Died on 10th day. Wound clean. Autopsy: Cancer of stomach with metastases. Papilloma of bladder, etc.

INTESTINAL OBSTRUCTION FROM OTHER CAUSES

29. July 31, 1900. E. S. 374–176. Male—78. Obstruction 4 days. Op. E. A. C.—A constricting band obstructing small intestine found and cut. Intestinal contents evacuated with trochar. Died same day.
30. June 26, 1901. E. S. 390–124. Male—68. Sick 3 weeks. Obstruction 3 days. Op. E. A. C.—Mesenteric thrombosis; resection 6 feet of intestine. No anastomosis. Died next day.
31. July 17, 1901. E. S. 392–36. Female—33. Chronic obstruction 2 yrs. Recently worse. Op. E. A. C.—Portion of small intestine, including several tuberculous strictures, removed. End-to-end suture. Death on 12th day from pneumonia.
32. Aug. 17, 1901. E. S. 394–102. Male—47. Partial obstruction 5 days. Had been op. by E. A. C. a year previously for appendicitis. Hernia in scar. Op. E. A. C.—Cecostomy. Vomiting and hiccough persisted for a week, when he died of exhaustion.
33. July 3, 1902. E. S. 412–163. Male—30. Sick for 3 weeks. Obstruction 2 days. Op. E. A. C.—Removal of a band from Meckel's diverticulum which had obstructed small intestine. Died on 2d day. Delirium tremens.
34. July 18, 1903. E. S. 133222. Male—19. Previously op. by another surgeon a year before for appendicitis. Typical symptoms of obstruction for 2 days. Op. E. A. C.—Removal of a constricting band from Meckel's diverticulum. Enterostomy and evacuation of intestinal contents. Died on 2d day.

35. Dec. 5, 1907. E. S. 161404. Male—62. Obstruction 3 days. Op. E. A. C.—Huge volvulus of cecum; reduced; cecostomy. Normal convalescence until 16th day. Sudden death from pulmonary embolism.
36. Feb. 18, 1907. E. S. 151575. Female—49. Chr. abdom. symptoms for several mos. Acute for 3 days. Waited 24 hrs. for peritonitis to localize. Op. E. A. C.—Fibrin on intestines, etc. Cause of obstruction and peritonitis not determined. Enterostomy. Died on 6th day.
37. Apr. 11, 1910. S. S. 169347. Male—18. Post-operative intestinal obstruction several days after appendectomy (by another surgeon). General peritonitis. Op. E. A. C.—Enterostomy. Died 14 days later of pneumonia.

SEPTIC CONDITIONS

38. June 26, 1901. E. S. 390-126. Male—21. Septicemia and diffuse abscess of cheek. Op. E. A. C.—Incision and drainage. Died the following day.
39. July 11, 1901. E. S. 392-26. Female—36. Sick 2 weeks. Op. E. A. C. —Abdom. incision and drainage of a pelvic abscess. Fecal fistula (probably pre-operative). Died on 13th day.
40. Apr. 6, 1902. E. S. 404-124. Female—23. Large pelvic abscess. Op. E. A. C.—Vaginal drainage of abscess. Later three more attempts were made to establish satisfactory drainage. Two by E. A. C. and the last by F. B. Harrington. Death in 3 mos.
41. Aug. 27, 1902. E. S. 128713. Male—37. A moribund case of peritonitis of unknown origin. Op. E. A. C.—Cocaine. Drainage of peritoneum. Died same day.
42. Sept. 22, 1903. E. S. 134181. Male—8 mos. Double deep cervical abscess, opened by House Surgeon under E. A. C.'s direction. Complications; severe diarrhœa. Died on 9th day. Wounds O. K.
43. Feb. 25, 1906. S. S. 146574. Male child—9 mos. Abdom. pain and fever for 4 days. Op. E. A. C.—Negative abdom. exploration. Died suddenly next day. Autopsy showed acute pericarditis and status lymphaticus.
44. Dec. 24, 1906. E. S. 558-215. Alcoholic male—38. Abscess of neck. Operated on by House Surgeon under E. A. C.'s direction. Delirium tremens. Death on 6th day.
45. Jan. 7, 1907. E. S. 150980. Female—34. Severe epigastric pain and vomiting for 3 days. Obese woman in profound collapse. Op. E. A. C. —Distended bowels. No cause for obstruction found. Enterostomy. Died a few hours later. Autopsy: Acute pancreatitis. Impacted stone in ampulla.
46. Jan. 1, 1908. E. S. 156570. Female—54. Abdom. pain for 2 weeks. Op. E. A. C.—Multiple abdominal adhesions found. Nothing done. Healing by first intention. Transferred to medical on 34th day, under diagnosis of acute endocarditis. Died 5 days later. No autopsy.
47. Dec. 19, 1911. E. S. 180030. A girl of 5 yrs. Abdom. pain for 1 week. Op. E. A. C.—Cloudy fluid, peritoneum red and injected; appendix adherent and strictured, but not acute. Culture showed pneumococci. Died on 8th day.
48. Aug. 8, 1913. E. S. 190582. Male—25. Very acute abdom. pain 54 hrs. Op. E. A. C.—Free bloody fluid. Hard hemorrhagic pancreas incised and drained. Died on 33d day of acute mania(?). Autopsy showed that pancreas had entirely sloughed away.
49. Feb. 20, 1914. E. S. 884-67. Colored male—48. Agonizing abdom. pain for 2 days. Op. E. A. C.—Greatly enlarged left lobe of liver presented. I considered it gumma and closed the abdomen. Patient was transferred to care of another surgeon, and died on 7th day with symptoms strongly suggesting abscess of liver. Wasserman negative. Wound clean.

OTHER CONDITIONS

SKULL FRACTURES

50. Aug. 8, 1901. E. S. 394–56. Male—43. Fell off roof. Comatose. Fracture of base of skull. Op. E. A. C.—Trephined and clot evacuated. Died same day.

51. Sept. 28, 1901. E. S. 396–32. Male—4. Fell from fire escape. Unconscious. Op. E. A. C.—Raising depressed fracture of skull. Died next day without having recovered consciousness.

52. Nov. 18, 1905. E. S. 145249. Male—?. R. R. accident. Multiple injuries and depressed fracture of skull. Op. E. A. C.—Elevation of depressed fragment; puncture lateral ventricle. Died same day. Autopsy: Intra-peritoneal hemorrhage from ruptured liver, kidney, and adrenal.

53. Jan. 26, 1907. E. S. 560–191. Male—32. Brought in unconscious. Vague history of fall. Op. E. A. C.—Exploratory craniotomy—negative. Died next day. Autopsy: Hemorrhage from aneurysm of middle cerebral artery. Tuberculosis of lungs.

54. Nov. 2, 1907. E. S. 155538. Male—24. Fell off running-board of car. Comatose. Op. E. A. C.—Trephined. Subdural hemorrhage. Fracture of base. Died same day.

55. Sept. 9, 1908. E. S. 160174. Male—31. Fell on head; bleeding from mouth; convulsions. Op. E. A. C.—Negative exploratory craniotomy. Died 4 days after op. Delirium tremens. Autopsy: Cyst of brain, mitral disease, etc.

56. Jan. 11, 1909. E. S. 161930. Male—40. Injuries following epileptic attack in a drunkard. Unconscious. Convulsions. Op. E. A. C.—Exploratory craniotomy. Fracture temporal bone. Brain had dark, bloody appearance. Regained consciousness for 24 hrs., but died 2 days later.

57. Jan. 3, 1911. E. S. 173779. Male—23. R. R. accident. Shock. Coma. Multiple injuries. Comp. fracture of tibia and fibula. Depressed fracture of skull. Op. E. A. C.—Raising depressed fracture. Died same day without recovering consciousness.

Note.—I believed and still believe in operation on every case with severe symptoms, of fracture of the base. Several successful cases will be found in the records.

CRUSHED OR SEPTIC LEGS (AMPUTATION)

58. May 2, 1901. E. S. 386–162. Male—26. Run over by express wagon. Comp. fracture of tibia. Operated on by House Surgeon and bone wired. Later sepsis and pyemia. Op. E. A. C.—Amputation at knee. Death from pyemia on 19th day.

59. Sept. 20, 1902. E. S. 129234. Male—22. Compound fracture of thigh and internal injuries. Op. by House Surgeon, under direction of E. A. C. Thigh amputation. Died same day.

60. Jan. 8, 1903. E. S. 425–147. Male—27. R. R. accident. Both legs crushed. Multiple injuries, including fractures of humerus and ulna. Op. E. A. C.—Amputation both legs and one arm. Died next day.

61. May 19, 1903. E. S. 444–1. Male—40. Charcots knee-joint, which had been excised by another surgeon and followed by severe sepsis. Op. E. A. C.—Thigh amputation. Death on 12th day from sepsis and exhaustion.

62. May 12, 1904. S. S. 137328. Male—21. Both legs crushed in R. R. accident. Op. E. A. C.—Rt. thigh amputation. Left leg amputation. Death same day.

63. Jan. 2, 1906. E. S. 145850. Male—55. Osteomyelitis of femur, previously operated on by several other surgeons. Severe sepsis from knee-joint to groin. Op. E. A. C.—Thigh amputation. Died soon after op.

64. Jan. 5, 1910. E. S. 167717. Male—33. R. R. accident. Traumatic amputation both legs and left arm. Op. E. A. C.—Direct transfusion. Died while transfusion was being done.

MULTIPLE INJURIES

65. Dec. 5, 1907. E. S. 156021. Male—25. Crushed by locomotive wheel. Op. E. A. C.—Irrigation and cleaning of extensive lacerations of scrotum, perineum, thigh, and buttocks. Died same day.

66. Nov. 2, 1908. E. S. 160961. Male—43. Fell from roof. Fracture left ribs, clavicle, and left Colles fracture. Intra-thoracic hemorrhage. Op. E. A. C.—Negative exploratory laparotomy for suspected abdominal hemorrhage. (Cocaine.) Died same day.

67. Jan. 9, 1910. E. S. 672–75. Male—28. Run over by electric car. Lacerated wounds of left arm, hand, lower abdomen, urethra, and testicle. By direction of E. A. C. on telephone, the House Surgeon cleaned up all the wounds with great care. The patient died 6 days later with sepsis, sloughing, delirium, and pneumonia.

TRAUMATIC TETANUS

68. Jan. 28, 1900. E. S. 374–58. Male—11. Blank cartridge wound of hand 10 days before. Tetanus. Op. E. A. C.—Powder and wadding excised with ragged tissue from hand. Wound packed. Antitoxin. Died on 5th day.

69. July 11, 1900. E. S. 374–118. Male—17. Blank cartridge wound of hand. Tetanus. Op. E. A. C.—Antitoxin injected in both lateral ventricles through small trephine holes. Died next day.

70. Aug. 20, 1900. E. S. 376–10. Male—33. Tetanus following rusty nail wound in foot 5 days before. Op. E. A. C.—Wound in foot excised and both lateral ventricles injected with antitoxin. Death next day.

71. Dec. 10, 1909. E. S. 670–95. Male—16. Revolver wound of palm of hand 7 days before. Tetanus. Op. by House Surgeon, under direction of E. A. C. Excision of wound of hand with paper wad. Antitoxin. Later another surgeon excised the axillary glands. Death on 6th day.

FRACTURED SPINE

72. Aug. 4, 1900. E. S. 372–168. Female—34. Fell from bleachers. Complete paralysis below nipples. Op. E. A. C.—Laminectomy 3–5 dorsal. Found cord completely severed. Died suddenly as she was lifted from operating table.

73. Feb. 21, 1906. S. S. 146521. Male—38. Fell 30 feet. Fract. 5th cervical vertebra. Op. E. A. C.—Laminectomy. Became cyanotic and died on 2d day.

RUPTURED OR PERFORATED VISCERA

74. Aug. 18, 1900. E. S. 376–2. Male—42. 24 hrs. before, struck abdomen on fence post when walking fast in dark. General peritonitis. Feces in abdominal cavity. Ruptured intestine found and closed. Died next day.

75. Male—28. Had been operated on by another surgeon 4 weeks previously for acute appendicitis and general peritonitis. A sponge had been left in the abdomen. Op. by E. A. C. under diagnosis of residual abscess. Abscess cavity which communicated with intestine found, and sponge removed. Died soon afterward with fecal fistula.

76. Dec. 25, 1901. S. S. 60–16. Male—51. Sudden abdom. pain and signs of peritonitis. Op. E. A. C.—Peritonitis due to perforation of cancer of stomach. Gastroenterostomy. Died on 4th day.

77. July 21, 1902. E. S. 390–220. Male—40. Gunshot wound of arm, chest, and abdomen. Kidney and lung perforated. Op. E. A. C.—Laparotomy. Blood found in abdominal cavity, but no organ seemed to be wounded except kidney. As bleeding along drainage tract continued, a second operation was done which demonstrated punctate hemorrhages in intestine, probably from wound of mesenteric vessels. Enterostomy. Death on 2d day.

78. Aug. 27, 1902. E. S. 418–83. Male—4. Abdominal injury from wagon. Op. E. A. C.—Abdomen full of blood from bleeding mesentery, which had been torn from intestinal attachment. Died same day.

79. Oct. 29, 1902. W. S. 129632. Male—21. Perforated typhoid ulcer. Op. E. A. C.—Exploration with cocaine followed by ether. Perforation found and closed. Died on 3d day. Autopsy showed a second perforation and peritonitis.

80. Aug. 23, 1903. E. S. 133774. Male—37. Perforated duodenal ulcer with general peritonitis. Op. E. A. C.—Perforation closed. Drainage. Later two secondary operations were done by E. A. C., one for subdiaphragmatic abscess and one for pelvic abscess. Still later, another surgeon operated for intestinal obstruction. The patient died 10 days after this, two months after my first operation. (I believe this to have been the first case of perforated duodenal ulcer recognized at operation and closed by suture at the hospital.)

81. Sept. 25, 1903. E. S. 134230. Female—65. Peritonitis from perforated gastric cancer. Op. E. A. C.—Partial gastrectomy, gastroenterostomy; drainage. Died on 3d day.

82. Oct. 15, 1905. E. S. 144614. Male—9. Perforated typhoid ulcer. Op. E. A. C.—Suture perforation. Died on 13th day. Necrosis of suture line with abscess.

83. Dec. 30, 1905. E. S. 145792. Male—37. General peritonitis from ruptured bladder. Op. E. A. C.—Free pus in peritoneum. Bladder small and wilted. Drainage. Died same day.

84. Jan. 4, 1906. E. S. 145839. Male—50. Abdom. pain and vomiting for 5 days. In medical ward 2 days without surgical consultation. Op. E. A. C.—General peritonitis. Drainage. Cause not searched for, as condition too poor. Died same day. Autopsy showed a perforation of a diverticulum of ileum, strictures of intestine, general peritonitis, etc.

85. Dec. 22, 1907. E. S. 156279. Male—49. Abdom. pain and vomiting 5 days. Much worse last 12 hrs. General peritonitis. Op. E. A. C.—Suture of perforated duodenal ulcer and drainage. Died soon after op.

86. Dec. 13, 1909. E. S. 167351. Male—49. Blow on abdomen 4 days before. Op. E. A. C.—Peritonitis in right iliac region, where an ecchymosed coil of intestine was firmly adherent. In freeing it, it was ruptured. Excision of damaged six inches. Enterostomy. Death on 4th day, shortly after wound had broken open from distention.

87. Nov. 13, 1910. E. S. 172960. Male—40. Perforated duodenal ulcer. Patient in desperate condition from several months' illness with hemorrhages and obstruction. Op. E. A. C.—Peritonitis. Closure perforation and drainage. Later a jejunostomy under cocaine. Died on 8th day. Autopsy: Tuberculosis of lungs with cavity formation. Tuberculous peritonitis. Tuberculous ulcers of duodenum, etc.

88. Dec. 5, 1911. W. S. 179789. Male—4. Abdom. pain 48 hrs. General peritonitis. Op. E. A. C.—Suture of perforation of gastric ulcer, and drainage. Died same day.

89. Feb. 8, 1912. E. S. 184939. Female—26. Abdom. pain 2 days. General peritonitis. Op. E. A. C.—Abdomen full of stomach contents. Perforation in duodenum closed. Drainage. Died in 24 hrs.

90. Mar. 3, 1912. E. S. 181351. Male—17. Abdomen injured in coasting 24 hrs. before. Op. E. A. C.—General peritonitis. Nearly complete transverse rupture of intestine. Lavage. Double enterostomy in ends of rupture. Died in 48 hrs.

91. Jan. 10, 1913. E. S. 187040. Male—40. Perforated duodenal ulcer with general peritonitis. Op. E. A. C.—Closure of perforation and gastroenterostomy. Delirium tremens. Death on 3d day. Abdomen in good condition.

92. Feb. 26, 1913. E. S. 187822. Male—29. Perforated duodenal ulcer and peritonitis. Op. E. A. C.—Closure of perforation. Appendectomy. Death on 2d day from hematemesis. Autopsy showed the hemorrhage had come from another duodenal ulcer.

Note.—Bad as these cases were, the records will show that I saved other similar ones.

STRANGULATED HERNIA

93. Aug. 24, 1901. E. S. 392-116. Female—42. Femoral hernia, strangulated 4 days. Op. E. A. C.—Resection gangrenous bowel. End-to-end anastomosis. Died next day.

94. Dec. 13, 1901. E. S. 400-80. Male—57. Inguinal hernia, strangulated 12 hrs. Op. E. A. C.—Local anæsthesia. Four inches of black bowel with adjacent Meckel's diverticulum resected. Lateral anastomosis and enterostomy in proximal end. Death on 3d day.

95. Sept. 16, 1902. E. S. 129024. Male—43. Strangulated umbilical hernia. Op. E. A. C.—Many coils in sac. One coil 10 inches long completely gangrenous. Free pus in abdomen. Excision gangrenous gut and enterostomy. Death in 24 hrs.

96. Sept. 20, 1903. E. S. 134148. A new-born baby with a malformation of abdomen, so that most of intestine and liver were in the sac of an umbilical hernia. Op. E. A. C.—Organs replaced and sac closed. Death in 24 hrs.

97. May 3, 1905. S. S. 142437. Male—68. Inguinal hernia of long standing; strangulated for 12 hrs. Op. E. A. C.—Many adhesions in sac. Gut viable; returned to abdomen. Died on 2d day of double pneumonia.

98. Nov. 26, 1906. E. S. 150431. Corpulent female—52. Strangulated umbilical hernia for 4 days. Op. E. A. C.—Viable(?) gut returned. Vomiting continued. Death on 2d day.

99. Jan. 11, 1907. E. S. 151052. Male—26. Strangulated inguinal hernia for 5 days. Op. E. A. C.—Enterostomy. Died next day.

100. Dec. 6, 1910. E. S. 173325. Female—50. Laparotomy by another surgeon in 1898. In 1907, op. by still another surgeon for hernia in scar. Came in with hernia in scar strangulated for 48 hrs. Op. E. A. C.—Multiple adhesions freed and a viable(?) coil of dark red-brown intestine reduced. Died soon after operation. Autopsy showed syphilitic aortitis, chronic meningitis, hypertrophy, and dilatation of heart, etc.

Note.—Perhaps enterostomy and washing of inside of gut might have saved some of these.

TUBERCULOUS PERITONITIS

101. June 12, 1903. E. S. 132668. Female—35. Entered as emergency. 12 days' abdom. pain and vomiting. Op. E. A. C.—Diffuse tuberculous peritonitis. Washed with salt solution and wound closed. Wound clean.

Two secondary operations were done by E. A. C. to drain abscesses. In one of these the bowel was nicked and a fecal fistula developed. Later another surgeon attempted (against my urgent advice) to close the fistula. Death soon after. This was 3 mos. after first operation.

TRANSFUSION FOR RUPTURED LIVER

102. Feb. 5, 1908. W. S. 156904. Male—18. Multiple injuries. Intra-abdominal hemorrhage from ruptured liver, fractured skull, etc. Shock. Op. E. A. C.—Direct transfusion by Crile method. Laparotomy by S. J. Mixter. Ruptured liver packed with gauze. Patient was put in good condition by transfusion, but died on the 8th day of sepsis in the abdominal wound. Autopsy showed ruptured liver, hydrothorax, cardiac insufficiency, splenic tumor, thrombosis of portal vein, skull fractured in right temporal region and base, peritonitis.

OPERATIONS FOR CANCER OF STOMACH

103. Jan. 6, 1910. E. S. 672-35. Male—46. Severe gastric symptoms. Op. E. A. C.—Excision of large indurated ulcer of lesser curvature (cancer). When the suture was completed, the stomach was a mere contracted tube. Gastrostomy was done, so that a catheter could be left in the duodenum. The patient improved for 2 weeks, when the wound broke down, and he died on the 17th day. Autopsy: Bronchopneumonia and lung abscess. Septic wound.

104. Mar. 1, 1913. E. S. 187691. Male—52. Had been operated on 4 yrs. previously by another surgeon for same symptoms. A cholecystostomy had been done for supposed cholecystitis. Relief was only temporary. When seen by me he was anemic, emaciated, with typical symptoms of cancer of stomach. Op. E. A. C.—Partial gastrectomy with gall bladder, which was adherent in mass. Died 5 days later. Autopsy showed metastatic glands, peritonitis, etc.

105. May 14, 1913. E. S. 189130. Male—60. Symptoms suggesting ulcer or cancer of stomach. Op. E. A. C.—A large indurated ulcer, high on lesser curvature, adherent to pancreas (probably cancer). Ant. gastroenterostomy and enteroenterostomy. Died on 5th day. Pulmonary embolus and nephritis.

106. July 7, 1913. E. S. 19005. Male—30. A case which had lain for weeks in the medical wards, with severe gastric hemorrhages; had been transfused. I had watched for a favorable opportunity to operate. Failure of medical treatment. Op. E. A. C.—Large ulcer (probably cancer) of lesser curvature adherent to pancreas. Gastroenterostomy satisfactorily completed under local anæsthesia. Transfusion (indirect) by another surgeon. Suddenly died during transfusion.

107. July 19, 1913. E. S. 190225. An emaciated man of 63, with severe gastric symptoms. Op. E. A. C.—Large mass on lesser curvature. Local anæsthesia. Gastroenterostomy. Died in medical ward a month later from pulmonary condition. Autopsy: Cancer with metastases. Pneumonia and abscess of lung.

108. Sept. 8, 1913. E. S. 191105. Male—?. Symptoms of cancer of stomach. Op. E. A. C.—Partial gastrectomy for cancer of pyloric end. Suddenly died on 4th day of pulmonary embolus(?).

109. Dec. 2, 1913. E. S. 870-331. Male—25. An obscure abdom. emergency. Op. E. A. C.—Liver full of soft knobs. One tapped with trochar and bit excised for path. exam. Died same night. Autopsy: Cancer of stomach and liver, and peritonitis.

110. Aug. 16, 1902. E. S. 410–245. Female—52. Extensive cancer of uterus. Op. E. A. C.—Total hysterectomy and radical pelvic dissection, using Crile clamps on int. iliac arteries. Comp.—Thrombosis of external iliac artery. On 5th day op. E. A. C.—Thigh amputation for gangrene. Died soon after.

111. Aug. 23, 1902. E. S. 128665. Female—36. Extensive cancer of uterus. Op. E. A. C.—Total hysterectomy and radical pelvic dissection. Bladder and ureter involved. Comp.—Urinary fistula, and later recto-vaginal fistula. Died 3 weeks later.

112. June 6, 1900. E. S. 372–38. Female—73. Cancer of breast. Op. E. A. C.—Amputation of breast and dissection of axilla. Died of pneumonia on 7th day. Wound clean.

113. July 16, 1902. E. S. 412–239. Male—58. Extensive cancer of lower jaw. Op. E. A. C.—Excision of almost whole lower jaw back to angles. Tongue suspended with silver wire. Died suddenly about 3 weeks later of pulmonary complications—probably embolism.

114. Jan. 5, 1906. E. S. 161772. Female—43. Prolapse of uterus and abdom. tumor (ovarian). Op. E. A. C.—Removal of tumor size of child's head (sarcoma), with 3 loops of involved intestine. End-to-end anastomoses. Died next day. Peritonitis and other lesions.

115. Sept. 24, 1906. E. S. 149612. Male—75. Extensive cancer of lip. Op. E. A. C.—Removal of whole lower lip and dissection of both sides of neck. Died 2 days after operation. Autopsy: Pneumonia. Cysts of kidneys. Hypertrophy and dilatation of heart. Wound clean.

116. Apr. 13, 1909. E. S. 163383. Female—59. This patient was given up as inoperable by another surgeon in Mar., 1904. She had extensive cancer of the face, involving the whole nose and both lower eyelids. Between this date and 1909, I operated on her 8 times—each time excising portions of her facial bones and covering in the defects with flaps from the cheek and neck. Each operation made her presentable for a few months, and she would return when recurrence took place. At the final operation I removed what remained of both upper jaws. She died the same night. (See Bibliography.)

117. Jan. 27, 1910. E. S. 167909. Male—45. Symptoms suggesting cancer of stomach. Op. E. A. C.—A papillary adenoma of the duodenal papilla size of horse-chestnut. Excision and cauterization of base. Cholecystduodenostomy to insure drainage of bile into intestine. Died on 6th day. Sepsis and hemorrhage. Autopsy: Old tuberculosis both lungs, etc.

COMPLICATED OR ACUTE GALLSTONE CASES

118. Sept. 9, 1901. E. S. 392–152. Female—53. Violent abdom. pain, jaundice, and signs of peritonitis. Op. E. A. C.—General peritonitis. Distended gall bladder. Distended intestines. Enterostomy. Died in 24 hrs. (probably acute gall bladder).

119. July 11, 1902. E. S. 128004. Female—36. Had previously been operated on (Aug., 1901) by E. A. C. and 7 large gallstones removed from gall bladder. Returned with jaundice and severe attacks of pain (abuse of morphine). Op. E. A. C.—Cholecystectomy; gall bladder contained more gallstones of entirely different shape and color from those first removed. Died on 20th day from exhaustion due to excessive fluid drainage from duct.

120. Aug. 19, 1902. E. S. 128602. Female—41. An emergency case, with typical gallstone symptoms and jaundice. Op. E. A. C.—Gall bladder contained viscid fluid and small stones. Nothing felt in duct. Cholecystostomy. After operation there were symptoms of common duct

obstruction,—all bile came through wound, and stools were clay-colored. At second operation, no cause for obstruction was found and a cholecystenterostomy was done. Death 30 days after first operation.

121. June 15, 1903. E. S. 132686. Female—50. Deep jaundice and other severe symptoms of gallstones. Op. E. A. C.—Cholecystectomy and removal of stone in common duct. Drainage of small abscess of liver. Death on 14th day. At autopsy a sponge was found in the open wound in contact with the wick.

122. Dec. 26, 1905. E. S. 145736. Female—34. Jaundice and other severe symptoms. Op. E. A. C.—Choledochoduodenostomy. A very large stone removed from papilla and others from common duct and gall bladder. Died on 11th day.

123. Jan. 2, 1907. E. S. 150917. Female—52. Had been operated on a year previously by another surgeon; some stones were removed from the gall bladder. Returned with pain and jaundice. Op. E. A. C.—Stone removed from common duct, etc. Died on 19th day. Pneumonia, etc.

OPERATIONS FOR VARIOUS OTHER CONDITIONS

124. Feb. 12, 1906. E. S. 146396. Female—39. Seven months ago slight attack of abdom. pain, more marked on right side. Not confined to bed. Six months ago similar attack, but much more severe. In bed 2 weeks. Tenderness over appendix. Op. E. A. C.—Appendix twisted, somewhat enlarged, and adherent to cecum. Ileum somewhat adherent to other bowels and posterior peritoneum. Appendectomy. The patient died 48 hrs. later. Death was unexplained. There was distention, black vomit, and cyanosis.

Note.—These notes are taken from the record. I have no recollection of this case, although I remember nearly all the others. I must have failed entirely to find the lesion which was the cause of her death. The case is catalogued as "chronic appendicitis." Possibly it was acute peritonitis from post-operative infection, but I think not. It was an exploratory operation in the course of which the appendix was removed, and it should not be classed as death from "appendectomy."

125. Jan. 1, 1908. E. S. 156415. Male—1. Extreme deformities of lip and palate. The double harelip and protruding maxillary bones were successfully operated on by E. A. C. in Oct., 1907, and the cleft palate operation postponed until Jan., 1908. Op. E. A. C.—Radical cleft palate operation apparently very successful. The child died next day of acetonemia(?). (Probably op. hemorrhage.)

126. Nov. 10, 1908. E. S. 624-221. Female—37. Operated on 3 yrs. before by another surgeon for fibroid of uterus. Ventral hernia in scar. Chr. phlebitis of leg. Chr. cough. Kept in bed a week for temp. (102) and cough to quiet down. Op. E. A. C.—Radical cure of ventral hernia. Cough increased at once after op. Died on 3d day. Pneumonia.

127. Nov. 12, 1908. W. S. 161115. Male—4. Ciccatrix from burn of neck and chest, causing great deformity. Neck was obliterated and chin drawn down to sternum. Op. E. A. C.—Extensive plastic and excision of scar tissue. Died on 17th day from pneumonia and sepsis.

128. Nov. 21, 1908. E. S. 630-151. Male—7. Advanced cirrhosis of liver. Op. E. A. C.—Abdom. exploration and evacuation of ascitic fluid. Erysipelas of face. Later another operation—omentopexy. Died on 6th day.

129. Nov. 12, 1909. E. S. 166890. Male—39. Enormous renal calculi in both kidneys. In Jan., 1909, E. A. C. had removed a stone weighing 220 grams (I think the largest on record in this vicinity) from left kidney, and sent patient home to recuperate before operating on right kidney.

He returned in poor condition. Op. E. A. C.—Nephrotomy (rt.) and removal of stones nearly as large as the one from the other side. Death on 14th day.

130. Dec. 7, 1909. E. S. 167264. Female—37. Multiple abdom. and pelvic symptoms and uterine displacement and lacerations. Op. E. A. C.—Uterus dilated and curetted. Trachelorrhaphy, perineorrhaphy, appendectomy, ventral fixation. Death on 6th day. Autopsy showed a variety of lesions, including gallstones and pneumonia. Wounds O. K.

131. Aug. 11, 1900. E. S. 374–222. Male—45. Multiple strictures of urethra, and periurethral abscess. Urinary incontinence 8 yrs. Op. E. A. C.—External and internal urethrotomy. Sudden death on 14th day. Cause unknown.

132. Jan. 27, 1909. E. S. 636–139. Male—49. Stricture of urethra. Op. E. A. C.—Perineal section. Post-operative bronchitis. Sudden death on 36th day. No autopsy.

133. Jan. 2, 1907. E. S. 150920. Female—63. In desperate condition from trifacial neuralgia. Had had previous peripheral operations. Op. E. A. C.—Total extirpation of Gasserian ganglion. Death on 2d day. Pneumonia and meningitis(?).

134. July 21, 1902. E. S. 412–273. Male—26. Hydrocele, varicocele, and double hernia. Op. E. A. C.—Radical cure of above. Pneumonia followed the operation, and he was transferred to medical ward. All wounds healed by first intention, but patient died on 45th day.

Note.—The above ten cases are, in my opinion, those most subject to adverse criticism.

GASTRIC AND DUODENAL ULCER

(ALL PERFORATED, BUT ADHERENT)

135. Jan. 23, 1910. E. S. 167863. Male—42. Post. gastroenterostomy had been done for duodenal ulcer in June, 1905, by another surgeon. Relief for nearly 4 yrs., when symptoms recurred with increasing severity. Persistent vomiting, hemorrhages, stasis, and dilatation. Op. E. A. C.—Stomach greatly dilated. Both pylorus and stoma contracted so as to be practically impassible. Ant. gastroenterostomy to another loop. Patient continued to have hemorrhages and died on 7th day. Autopsy showed active duodenal ulcer and contracted stoma of former gastroenterostomy, with ulceration and a Pagenstecker thread hanging in lumen. Broncho-pneumonia.

136. Jan. 23, 1910. E. S. 167784. Male—40. Typical duodenal ulcer symptoms, worse recently. Op. E. A. C.—A hard, matted mass near pylorus in duodenum—evidently perforation which had been closed by adhesions. Gastroenterostomy. Died on 8th day. Autopsy: Peritonitis, streptococcus septicemia, broncho-pneumonia.

137. Dec. 7, 1910. E. S. 173186. Male—54. Typical history of duodenal ulcer. Op. E. A. C.—Gall bladder, which was full of stones and adherent to duodenal ulcer, removed. Ulcer, which was posterior, dissected up and infolded. Post. gastroenterostomy. Died on 5th day. Sepsis.

138. Mar. 7, 1913. E. S. 187959. Female—26. Had all the classical secondary complications of gastric ulcer: perforation, hemorrhage, and obstruction. Repeatedly seen in medical wards from Mar. 7 to Apr. 10, and her condition considered too feeble for operation. Op. E. A. C.—Apr. 10, 1913—A small ulcer of duodenum and a large penetrating ulcer of lesser curvature adherent to pancreas. Partial gastrectomy, with the aid of Dr. C. A. Porter, whom I called in to help me. Death next morning. Shock.

139. Mar. 29, 1913. E. S. 188207. Male—50. Typical ulcer symptoms for 15 yrs. Came to hospital as last resort. A poor risk. Op. E. A. C.—

Multiple duodenal ulcers. Multiple right-sided adhesions; adherent appendix. Appendectomy; post. gastroenterostomy. Died on 11th day. Pulmonary emboli.

140. June 12, 1912. E. S. 183136. Female—48. Typical severe symptoms of chr. gastric ulcer. Had been operated on by another surgeon 18 months previously—gastroenterostomy. Op. E. A. C.—Large posterior ulcer, adherent to pancreas. The old gastroenterostomy was patent, but was *below* the ulcer. Partial gastrectomy seemed the only thing likely to relieve her, and was attempted in spite of her feeble condition. Death within 24 hrs. from shock.

141. Dec. 30, 1912. E. S. 186816. Male—56. Typical advanced symptoms of duodenal ulcer. Op. E. A. C.—A sub-acute perforation of an encircling duodenal ulcer. Gastroenterostomy. A finger of omentum was adherent to the perforation. Instead of removing this bit of omentum and then infolding, I infolded over the fat. I attribute the leakage which occurred to this. Death on 7th day.

Greater skill and better judgment undoubtedly might have saved a few of these cases, but where is such skill and judgment to be found? Can the Trustees of the Massachusetts General Hospital produce evidence of such skill and judgment from the consecutive records of any other surgeon? Do the abstracts of the fatal cases in their Reports point to it?[1]

If not, I claim the appointment as Chief of Staff under the same ruling that caused my resignation:

"*Resolved,* that in making appointments the Trustees will consider the fitness of the applicant for the special services which he will be called on to perform, and will seek to secure the best service available, without being bound by any custom of promotion by seniority."

And even if such superiority can be shown in the record of another, I claim the right to reappointment under him, so that I may try to serve the hospital better than he does. I only covet the position of Chief, in order to be forced out of it by a better man.

The Truth is that no Boston Board of Trustees could give me a Surgical appointment without displacing one of my friends. Even if I were put in to fill a vacancy, the man who was "in line" for that vacancy would feel injured,—so deep-rooted is our Seniority System. Even if a single group of cases should be assigned to me, some one would feel robbed of his "material." And as for me, I do not wish to replace any of my friends, unless it is very clear that I can and will do the work more efficiently.

However, I am only too well aware that to these Trustees honest aggression is far more heinous a crime than nepotism or humbug, so that I must prepare to make my own way in spite of their disapproval. It is clear from the financial report just presented that I must reorganize my work, invite a consulting staff, obtain financial backing, and actually drive the Massachusetts General out of Business and back into Charity. How this may be done will be developed in Part III.

[1] Trustees may be sure that their hospitals are badly organized, if the Chiefs of Staff do not have a higher mortality from their operations than their Juniors do.

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I publish this Bibliography as an evidence that, even if I did lose these cases, I studied and recorded the "material" which I had the *"privilege of using."* Many of the cases which died will be found reported and analyzed in these papers. Can the Trustees show that any other surgeon on their staff made better use of his "material"? What is the use of studying and writing and effort to add to the world's knowledge, if the mere operator is to be promoted? I could be satisfied if his End Results were better. But unless they were, the scholar, poor as he may be, should take precedence of the operator. Is surgery a science or a technique? Is the object relief or display?

Then take my Papers on the Shoulder Joint. I do not boast when I state that these have been accepted in Surgical Literature. I have received credit from foreign writers, from the text-books, and from practically every writer on the "shoulder." But the Massachusetts General, the hospital for whose cases I did the work, has given me no credit for it, in spite of the fact that every case I treated was benefited. Was I asked to continue to treat the shoulder cases? Are such cases ever referred to me now by the Hospital? Or are these cases simply neglected in the hurry of the Out-Patient work? Who cares whether they are relieved? Are the Trustees, the Chiefs of Staff, or any one else held accountable for them? Have my results ever been improved upon?

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Have these papers any financial value? I certainly could find no buyer for the copyrights, but *in my opinion* they are of far more value to humanity than all the money I have ever made by treating my individual patients. By the shoulder work alone, countless patients have been and will be helped in the hands of other doctors. Now *in your opinion* my writings may not be worth the paper they are printed on, but you cannot say the same of the writings of really original surgical observers and students. Even these men, after they have gained reputations, not only are not directly paid for their original work, but they have to pay large amounts for the preparation and illustration of their articles. And their enthusiasm for their work is so great, that they are even willing to humbug the rich, to get money to pay for their all-absorbing passion of making the most of their brains to benefit mankind.

No, there is no market for plain, truth-telling clinical articles. They are not worth a cent, and most medical publications even demand that the author pay for the illustrations. The natural consequence is a tendency to write for advertising purposes. Nine-tenths of our medical and surgical literature is published for this purpose alone, and the best of it is but a mixture of advertisement and true science. It is the accepted usage of the profession to advertise in this way,—a man is not expected to report his errors and failures. Naturally, as his living depends on it, he keeps his best foot forward.

Why did I write these articles? As I look back to analyze my intentions, so that I may see those of others, I find the following reasons:

1. Advertisement for personal business.

2. Hope of recognition of ability by my own hospital, the Massachusetts General, by my colleagues and friends, by my distant readers, and by the rising generation.

3. A real desire to use the best that lies in me to do my bit for humanity, recognition or no recognition.

I always had all three in mind, and I believe most men who write have also. The proportion varies somewhat, and the true value and the financial value are usually in inverse proportion. I believe that in my own case the desire to be recognized by my own hospital weighed the strongest. I thought that if I could do well, I should receive recognition and be promoted. I imagined that the Trustees of the hospital wanted such work done, and that if I kept at it and took good care of all my cases, I should get on in time. I knew, of course, that every hour I spent on such work instead of on technical experience and personal attention to patients, put me behind in private practice; but I hoped that some one was watching my efforts, and that the time would come when the Trustees would keep track of results and discover that study might really fit a surgeon to benefit their patients. I kept thinking that if the Trustees should advertise me by promotion for merit, there would be no need of diluting my

articles with personal advertisement! If I had only been sure of promotion by merit for relieving my patients, I could have spent more and more time in studying how to relieve them! But no, I find that they expected me to go on accumulating a good private practice, in order to make a good living and a reputation. They would have pretended to be grateful when I had continued to hold my appointment some years after my actual usefulness had ceased, and had allowed my reputation to cover their delinquencies.

Would it not be possible to use the ambition of young men openly and fairly? None of us desires to spend energy in study and writing, unless thereby we become better surgeons. If technique and reputation are the things to acquire, to have better success with our patients, what is the use of wasting time reading and writing, once we have got our Degrees? If Trustees had an End Result System, they could tell whether to promote scholars or operators, and both scholars and operators might know their own deficiencies and be able to proportion their work.

Some of these papers of mine have received recognition,—must I therefore be classed as a scholar, no matter how well my cases do? As a matter of fact, my "practical" colleagues might have written better papers, if they had been obliged to, to keep their positions. The whole realm of surgery is at present so permeated with humbug, that any one who will tell the plain, unvarnished truth about a series of cases, will find that he is writing an epoch-making paper! Cannot Trustees see that a true End Result Report of their hospital cases will be the first tangible directory to competent doctors, whether the hospital is associated with a university or not?

But as for the money value of my papers,—I am determined to find this out by selling this Report. Let every reader send me what he considers the value of this Report to him. If I get back the money it has cost me, I shall write another one, but I do not care to write another for mere advertising. Whatever money comes in for this Report, will be returned in full value in the next Report. If this Report is not paid for, I shall know that my duty is done as far as writing papers goes. Writing papers is the hardest part of modern surgery!

PART III

THE NEW ORGANIZATION

AN ILLUSTRATION OF HOW A GROUP OF EARNEST MEN MAY COMPETE WITH THE CLIQUES WHO DOMINATE THE CHARITABLE HOSPITALS IN ANY CITY

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The New Position of the General Practitioner

The day of the general practitioner is passing, it has almost passed in thickly settled regions; but the day of the isolated specialist has also begun to pass. Economic conditions do not permit the average person to employ the latter. Combinations of experts will to a great extent take the place of both, except in the unusual instances when the individual can maintain himself by his actual superiority in his own field.

We believe that there is today a demand for institutions representing combinations of specialists, to which the patient may pay one moderate fee and in return receive the benefit of the advice of one or all of the experts of the institution.

We believe that the modern rôle of the general practitioner will be as confidential adviser to the patient, to help to obtain from such institutions the diagnosis and expert treatment necessary, and to interpret and weigh the advice received.

This will lead to a reversal of the present relations. Now, the specialist sees few cases, and gets overpaid for each; the practitioner sees many cases, and gets underpaid for each. The time must come when the former cares for many cases at small fees, and the practitioner for fewer cases at relatively large fees. Logically, this state of affairs should come about, because the expert must necessarily acquire and retain facility by doing what he does many times; and, on the other hand, the general practitioner will have to take much time with each individual, and will have to have a wide knowledge, so as to understand to a certain degree all branches of medicine, and what results are to be expected.

If an institution subdivides its work among many individuals, each, like the specialized laborer in industry, will do the same thing again and again, and become more and more skillful. The patient

[1] The same method may be used in competition with "Fee-Splitters."

is like the buyer of a boot made by many workers. The doctor or general practitioner is the retailer. He fits the boot to the needs, taste, and pocketbook of the individual customer.

The doctor of today cannot give expert treatment any more than the retail shoe dealer can make all parts of the boot. The doctor must hold his custom by fitting the individual with satisfactory boots. In the future, the Public will realize that what they want from the doctor is advice, as from a man and a friend, as to *how to obtain* (not to expect him to give) adequate diagnosis and treatment. They will realize the impossibility of his being able to diagnose and treat unusual conditions effectively. Their chief need for him will be as adviser and sympathetic friend, and he will be paid as such, not as a purveyor of makeshift and ineffective treatment. They will rely on him more because he does not give treatment, than because "he does the best he can."

But the *sine qua non* of this honored relationship must be the establishment of institutions where the services of experts can be obtained when necessary, at reasonable prices. The Massachusetts General Hospital has recognized this fact in the establishment of their "pay clinic" for persons of moderate means.

It is the intention of this hospital to put another competitive combination of specialists at the disposal of practitioners who would like to hold this relationship to their patients, and of patients who want to establish this relationship to their physicians. We plan to sell standard goods; we are not a Charity which gives away unstandardized "seconds," nor do we set up as experts, like the most fashionable "make to order" tailors.

Fee–Splitting

The much condemned practice of fee-splitting is the result of such large fees being charged for operations or other special forms of treatment, that the temptation to split them naturally arises. Fee-splitting means that a physician urges his patient to go to a certain surgeon. The patient pays a large fee to the surgeon, and the surgeon, *without the knowledge of the patient,* rebates a part of it to the physician for having brought him the case. To a business man, accustomed to the usual methods of giving a commission to the person who brings a customer, this practice does not seem so very shocking. It is the customer's lookout to see that he gets a fair bargain. But in the case of surgery, the fact that the customer is not qualified to protect himself (for he has no means of judging whether the services received are valuable) changes the question entirely. The patient must put his trust in his physician, and if that physician betrays him, a criminal act is committed. In this community I sincerely believe that such acts are very rare, but we are not guiltless of the primary crime of overcharging for simple operations for which the laity shows a readiness to pay ridiculously high prices. No wonder the practitioner is tempted to

get his rake-off, when he sees some surgeon receive a large check for an hour's simple work, while he himself has done the real work and taken the real responsibility, by convincing the patient that an operation was necessary or wise.

It is our intention to Split Fees among ourselves, and to make the Fees thus split so small, that the patient may have something left with which to pay his friend the practitioner, enough to recompense him for the time and trouble he has taken. We shall try to teach each patient what responsibility his doctor has taken in advising the operation. We shall urge each patient to ask his doctor to attend the operation, so that he may be convinced of the pathologic findings, and that he may know with what care his case is conducted. Few patients realize how important for their after-care it is, to have their doctor see the actual pathologic conditions demonstrated at the operation. The patient should pay him for his time and trouble, for the Fees we ask are too small to stand Splitting behind the patient's back.

The Business Value of a Consultant

If a person can understand the business value to a practitioner of a surgeon who will split fees with him, it will not be difficult for him to understand the reverse position of the value to a surgeon of a consulting general practitioner.

A surgeon's income largely depends on his popularity with the general practitioners and medical consultants, for they can "steer" the patient into his hands. It is, therefore, for his interest to do the following things, which are well recognized as legitimate methods of increasing his clientele among the practitioners:

1. To make himself personally agreeable to them.
2. To back them up, when their cases go wrong.
3. To pay particular attention to those of their cases that enter the Charitable Hospitals.
4. To operate on or attend *gratis* the members of their families.
5. To insist that the practitioner's bill is paid before their own.
6. To take the conservative side on public questions pertaining to reforms of medical practice.

If a new consultant brought me 100 new cases next year, and these cases paid me only the "Hospital Fee" and no "Professional Fee," my hospital would be a financial success, as shown on page 119. Ten consultants might send me ten cases each, or 100 might send me one each. This would mean 10,000 more dollars for my receipts, without any great increase in my expenditure. If these cases should each pay also $100 Professional Fee, I should have $10,000 more to spend on my colleagues and assistants. This would put my undertaking on a solid basis. One fashionable Back Bay practitioner could do this for me, if he had the courage to take his share in the publicity.

Two and two make four. Consider the financial value to a surgeon of friendship and cordial relations with some prominent Back Bay consultant whose practice is among the rich and fashionable! Such "Entente Cordiale" relations seriously interfere with Hospital Efficiency. If you are rich, you probably do not see why.

Our New Finance

(See also page 122, Part II)

The hospital is already equipped to do business and to take care of more patients than come to us, but in course of time we shall need more space and more equipment of various kinds.

For instance, it is now clear to me that $10,000 invested in a better X-ray plant and an elevator would bring more than a 10 per cent increase in new business and in greater facility in conducting that which we already have. I shall, therefore, put in these improvements by calling in $10,000 of the proffered loans, of which there will always be the following list in the order in which they will be called in:

1. Employees' loans (to an amount not over $10,000 each) at 10 per cent interest. Of this 10 per cent, 5 per cent will be paid from the Hospital Fees and 5 per cent from the Professional Fees.
2. Loans at 5 per cent by members of the Staff for any apparatus or equipment they individually especially desire. (Provided they do not call the loan within five years.)
3. Loans by former patients at 5 per cent.
4. Loans by members of the medical profession at 5 per cent.
5. Loans by the laity in general at 5 per cent.

Now, if there is a good subscription list of these loans, we can enlarge the plant each year in proportion to the net earnings of the previous year.

As my personal property is worth $50,000,[1] and all loans will be secured by my note until the Institution is incorporated, no stockholder would run any risks except from my personal failure. Also, since I can make no income until the interest on the stock is paid, the stockholders' annual interest is guaranteed.

The result will be the absorption of all the loans by the employees, so that when the hospital is incorporated, it will be by the employees and myself. All the other persons who have proffered loans will merely be underwriters of the End Result Idea and of my personal ability to put it through. But an imposing list of underwriters, with the proffered loans running into millions, when published in our next Report, will make the Trustees of Hospitals and Corporations of Universities begin to take interest in the idea.

[1] Even if this were $500,000, it should not exclude me from competition *in* a Charitable Hospital or *with* Charitable Hospitals.

All loans and the interest thereon will be secured by E. A. C.'s note until the total investment in excess of the present plant reaches $100,000, when the Hospital will be incorporated by the stockholders, with the following statements in the articles of incorporation:

1. The Hospital shall be known as The End Result Hospital.
2. An End Result Report of all the cases who enter the Hospital must be published annually and sold at $1 apiece to any subscriber.
3. The rates of the Hospital and Professional Fees must never be increased, so that the standard of service will be kept proportionate to the economic conditions which give the value to a dollar.
4. Employees honorably retired from service may hold their 10 per cent stock during lifetime, and the principal will be paid to their heirs.
5. The appointment of the Acting Professional Staff shall be annual, by a merit system.
6. The members of the Acting Professional Staff shall retire to the Consulting Staff at forty-five.
7. Any member of the Staff or Acting Staff may loan, at 5 per cent, money for equipment which he especially desires, provided the loan is made for at least five years.
8. Any member of the Staff or any Employee may withdraw his loan at any time, and it shall be automatically withdrawn, if he is superseded, discharged, or resigns except as provided in Section 4.
9. The charter of incorporation may be revoked, if at any time it cannot be shown that at least 100 subscribers are ready to advance loans of $1,000 at 5 per cent. (This is to insure starting business again in case of adverse legal decision.)
10. Any physician or surgeon registered in Massachusetts may treat suitable cases at the Hospital with the same privileges as the Staff, provided the conditions of the End Result Report are complied with.
11. Such other articles as the incorporators deem necessary to insure the proper management and usefulness of the Institution.

It will be seen that if the provisions of these articles are observed, the following advantages will be obtained:

1. There will be no opportunity for any employee or any member of the Staff to grow rich at the expense of the patients.
2. Persons of medium circumstances will always be able to obtain Standard Hospital Care and Standard Professional Service in proportion to the economic value of a dollar. There will be no Charity except in the way we all treat one another. (See reference, "The Dividing Line between Medical Charity and Medical Business." By E. A. C.)
3. Employees can raise their salary by borrowing at a lower rate and loaning to the Hospital at 10 per cent. This will give them an interest in the institution and assure them of a pension when

honorably retired. It will also allow them to invest their savings at 10 per cent.

4. The medical profession can be standardized, so that those who ask larger fees can organize to give better service, or others can organize at a lower standard, and the Charitable Hospitals can take care of the rest.

5. The legacies, which former pioneers who have made standard operations and other forms of treatment possible, will be given to the people, by making such safe operations as those for hernia and appendicitis purchascable at reasonable prices.

6. The true pioneers of this generation will have honor, and can demand recompense for treating the cases which this Hospital refuses as too experimental for business.

7. The rich will find our Reports directories to enable them to select surgeons or physicians as particularly competent, because we have referred our difficult cases to them, and our Reports show that they have been relieved.

8. Our End Result Report will show the public how far scientific medicine has become practical.

9. Surgeons not on our Staff, who believe in some unusual operation which they recommend, can select favorable cases, operate on them here, and thus demonstrate to the Public, under our authority, the value of their ideas.

10. Patients who question their surgeon's sincerity, can insist upon putting their cases on record here, by asking him to operate here, or by spending a few days with us before being operated on.

11. The Acting Surgeons of this hospital will have records established of what their experience has been.

12. E. A. C.'s salary can never be any more than what the other members of the Staff choose to allow him from the Professional Fees, after paying the hospital expenses and interest. Like the other members of the Staff, he can, however, earn money outside of the hospital from patients who wish to retain his professional services apart from those of the rest of the Staff.

13. Although E. A. C. guarantees the loans and their interest from failure, the existence of a large number of *proffered loans* guarantees E. A. C. that, whenever the business justifies it, there is always plenty more money to invest in the Hospital or Professional equipment.

14. The question of this hospital's existence is therefore put up to the Public. If they want "a hundred dollar hospital with a hundred dollar staff," they can have it. When our ten beds stay full, we shall add more, but never shall increase our investment faster than income, nor increase our business so fast that we cannot take time to trace the results.

Those who loan to this hospital, loan to the End Result Idea. Their only risk is from E. A. C.'s inability to put the plan through. And their investment is guaranteed by his entire personal property.

No idea of charity is to be associated with this enterprise. It is a matter of business, not of philanthropy, except in so far as it will drive Business out of the Charitable Hospitals, so that their funds can be devoted to the sick poor of this generation, and to the prevention of sickness in all classes in the next generation.

Institutions from Which I Should Be Glad to Accept Proffered Loans

1. The Massachusetts General Hospital, because the success of my hospital would relieve that institution of any obligation to use its funds for the care of the curable, wage-earning classes. It could then devote some of its funds to determining and increasing the degree of its efficiency in treating the incurable and the poor. It could use its new private ward for the very rich, who could get the benefit of the services of the same Staff which it honors with appointments to treat the very poor, and the difficult and obscure cases in all classes of society.

2. Harvard University, because the End Result System would enable her to teach her students the difference between curable cases, suitable for them to accept, and difficult, obscure, or incurable cases, which should be referred to others. It would also enable her to select for instructors or to retain as instructors men who can and do teach the relief of disease by example rather than by precept.

3. The American College of Surgeons, because the example of this hospital would help them in their program to clean up the abuses of Modern Surgery.

4. The American Medical Association.

5. The American Hospital Association.

6. The American Association for the Control of Cancer.

7. All other associations for the Promotion of Health or the Elimination of Disease.

How Can I Obtain a Staff of Specialists?

I make no secret of it,—I have tried unsuccessfully among my friends to gather a Staff who will do as I do, *i. e.*, undertake to treat only such cases as I feel I am qualified to treat; and if I make a mistake, and do not succeed in relieving the patient, to report the case, as I have in this volume. For instance, I want an obstetrician who is qualified, after making a prenatal examination, to accept for confinement such cases as will run a normal course or present only minor complications. I want him to have the moral courage to call in for cases which are unusually difficult or in which any serious complication occurs, some acknowledged leader in obstetrics, just as I have called in Dr. C. A. Porter for Cases 53 and 146. Now where can I get a man who has such judgment as this? Even if our medical schools graduated students with a guarantee of having

demonstrated such ability in a series of one hundred cases, would such a man be willing to work for his share of our professional fee?

I want a throat specialist to do routine operations for tonsils, adenoids, and septums. Such operations are being done by the hundred at our Charitable Hospitals. They are not very difficult or dangerous, but they do not always help the patient. I think I could do them myself. *But I do not think I can tell when they will do good and when they will not.* Where can I find a specialist who will tell me? Is there any throat specialist who has a record of having had demonstrably good results in a series of a hundred consecutive operations of this kind? Is there any throat clinic which is trying to graduate assistants with such a record? I will go even farther. Is there any throat specialist who will risk his reputation by undertaking to operate on one hundred successive routine nose and throat operations at my hospital? Reference to my report will show that Cases 2, 3, 193, 250, 320 had operations of this class done by the two best specialists I know in Boston, Dr. D. Crosby Greene and Dr. J. L. Goodale. The operations were skillfully done, but in only one case did they result perfectly. I can get Dr. Greene or Dr. Goodale to operate on any difficult cases I want to,—no matter if the patient cannot pay. They are "authorities" and they *must* do it, if I call them. But what I want is a throat specialist who is not an authority, who will only do the simple and clearly indicated operations. When such a man has been on the Staff of this hospital for about five years, and his results have proved his ability to use this amount of knowledge and judgment, he might legitimately begin to pose as an "authority" himself!

A specialist to me is a man who can cure kinds of cases which I cannot. I want specialists of this kind to join my hospital,—not "authorities" in the various specialties. I can get the services of "authorities" for nothing for my poor patients!

In the same way I want all sorts of specialists. Here is the hospital well-equipped, and I am ready to add any necessary special equipment. All I ask is that each specialist shall do as I do and be ready to take whatever discredit may come from the failure of his best efforts.

Surely there must be men who dare to compete with the vested interests in Boston Medical Circles. Is there no one else who can see that Harvard and all other Medical Schools are teaching in the wrong way? Perhaps some specialists who are ready to retire from competitive practice as "authorities" will be willing to sink with me into the second class, and refer their difficult cases to others. Had we not better perish in this way by admitting that more and more cases had better be cared for by others than to continue to carry the "authority" and "experience" bluff to the same disastrous limit that we have seen our seniors carry it? If our experience counts for anything, it should enable us to make good in our selec-

tion of cases. When we refuse, and the younger specialist, who has more time and energy for study, succeeds, it will then be clearly to his credit.

The truth is, that I am trying to find the place where the end of the rainbow touches the ground. A specialist who can select cases which he can relieve is harder to find than an "authority." Every specialist becomes an "authority" as soon as you or I call him. But if I found a specialist who could select relievable cases, he would soon become a real "authority," and his business would increase so rapidly, that he could not afford to work for his share of our Professional Fee. I have to be constantly on guard against becoming an authority myself, and often have difficulty in convincing patients that I am not. If I were appointed as the head of a Clinic at a Charitable Hospital, I could not get out of it! Having publicly expressed the opinions I have, the Trustees could hold me to giving my personal care to the doubtful and difficult cases, and to thus allowing my subordinates to establish records for efficiency in the easier cases.

Every colleague who joins this Hospital Staff should take this same attitude. A Charitable Hospital appointment must mean an honor, not a privilege or a sinecure. The Charitable Hospital appointment should mean a fair exchange. It should be clearly understood that honor and opportunity must be paid for by responsibility and service.

But the appointments at this hospital have no such compensations. Here it must be give and take, in work and money. We want no pretense of charity. We sell guaranteed work as cheaply as is consistent with making a living. We must set fractures, remove gallstones, deliver babies, or excise tonsils, in return for money enough to pay the wages of our skilled labor, not our "authoritiy." We cannot pay our Staff with honor and opportunity. Not at present!

Thus it is not difficult to see why my friends do not join me in this enterprise. They can take less responsibility, receive more honor and less discredit, as well as make more money, by continuing to play their rôles as "authorities."

How different is my position from that of Charitable Hospital Trustees! Their clinic, their "material," their privileges, are assets which they can barter for service. To introduce The End Result System, all they would have to do would be to pass a vote! They can put Hospital Humbug asleep forever by merely insisting on an End Result Report! Nevertheless, in spite of all these disadvantages, I propose to begin my new organization by appointing the best Consulting Staff I can get after this Report has been published and distributed to every member of the American College of Surgeons and every member of the Massachusetts Medical Society.

I shall pick the best Consulting Staff I can, adding one by one, so that each one elected may vote for the next.

I am well aware that it will be difficult to find men who will be conscientious enough to accept this position and yet forceful enough to dare to do it. Such men will be able to earn large incomes without association with such an outlaw institution as this which stoops to advertising, "No cure, no pay," "Results guaranteed," and "Payment on the instalment plan." But still I shall find some men who will do it.

Duties of the Consulting Staff

1. The Consulting Staff will assist Dr. Codman and the Acting Staff to treat unusual or difficult cases.

2. They will aid Dr. Codman to select for appointment an Acting Staff of specialists. Appointments to the Acting Staff will be made annually on a merit system, chief consideration being given to what the Consulting Staff considers the best piece of work that has been done in this vicinity in each specialty.

3. They will advise Dr. Codman about the management and policies of the hospital.

A Staff Which Is Sought—Not One Which Is Seeking

I shall seek the help of this Consulting Staff, because I believe that they can help me to make a smaller percentage of errors in my own cases, and because they will increase the number of kinds of cases which this institution can *successfully* treat. I am not going to take advantage of their reputations to ask them to treat cases which will probably turn out badly. I seek their help in treating cases which will come out well, and I rely on their experience and judgment to enable them to choose such cases; and in the event of failure, to confess, as I have in Part I, what the cause of the failure was. We shall then act accordingly,—perhaps new equipment will be needed, perhaps better nursing, perhaps a new member on the Staff to do something which none of us know how to do.

Perhaps a doubtful case will turn up which none of us feels is likely to be successful. We can either refer such a case to a Professor of Surgery at one of our Medical Schools, to a Chief of Service at one of the Charitable Hospitals, or to some individual surgeon to whom some Charitable Hospital has assigned such cases for special study, or any of us may take him to some private hospital and operate on him there (in which case, as is usual in our present practice, the result of the experiment will never be known, unless he has first entered here).

By and by there will come a time when we shall have to admit that we cannot do certain special operations well enough to take the business risk on them. For instance, the technique of transfusion, especially the hemolysis test, is difficult for me to do, now that I have few opportunities. I have to *seek* this service from others who are having constant practice. Obviously it would be

better business for a member of our Staff to obtain an opportunity at one of the Charitable Hospitals to perfect himself in this technique, but that would be changing the positions,—he would be *seeking* the opportunity to practice.

And this is what positions on the Staffs of Charitable Hospitals are held for; men seek them instead of being sought for them. Trustees feign to appoint the best man they can get from those who apply. They do not seek competent men to make sure of a good result, but men who want practice, so that they can become competent. At this hospital we shall have the reverse condition: We seek to make sure of a good result, not merely an opportunity to experiment, or practice technique.

This policy of waiting for applicants for positions saves the Trustees no end of trouble, for by making *a pretense* to secure "the best surgeon available," they are able to keep the balance of power in their hands. If, instead of making a pretense, they actually did seek the best man available, it would turn the tables and put the power into the hands of the medical profession. The one who is sought makes the best of most bargains. I say "a pretense," because in this Community, year after year, appointments are made on a Seniority basis, and such a fact is incompatible with the development of modern Medical Science. It denies that study, effort, conscientious care, and natural qualifications can make one individual surpass another in his ability to relieve and cure symptoms due to definite pathologic conditions.

The Result of this Trustees' Pretense of seeking (and in reality of saving their institutions trouble and expense) is one cause of the present pitiable fact that the greater portion of the Community is treated in our Charitable Institutions. The doctors are paid nothing except in the opportunity to even up by taking exorbitant amounts from private patients. And those patients who pay must get just as little as the poorest do, because when Hypocrisy reigns for two-thirds in the hospital work, it cannot break the habit for the other third.

Certainly in this Community the time is nearly at hand when the worm will turn. The doctors are spending such a large proportion of their time at the Charitable Hospitals, without other pay than the opportunity to experiment and make reputations, and the Charitable Hospitals are outbidding each other so fast in what they give away ($3.50 to $4.48 per patient day), that presently there will be no public left to whom the doctors may sell the individual experience and skill gained by their hospital experiments and practice.

Did you ever think what the Trustees of our Hospitals would do in case of a strike by the medical profession?

They would *Seek instead of being Sought.*

Moreover, if the plan of this hospital were carried out in other hospitals, they would know whom to seek for each class of cases.

They might have to pay salaries for men to work on the difficult cases.

But the use of Charitable funds to pay a professional staff is legitimate, and furthermore, it would exact a sense of responsibility for End Results.

Cases are now neglected at Charitable Hospitals largely because of this idea that hospitals should get their professional service for nothing. This false Charity runs through the whole profession, beginning with the student who gets his education by means of it.

Cutting Prices or Raising Prices?

Suppose the plan we have indicated should go through, and this hospital should succeed in establishing itself as a standard,—a Hundred Dollar Hospital with a Hundred Dollar Staff.

Would it lower or raise professional charges? By some I shall be accused of a malign attempt to cut down surgeons' incomes. By others I shall be accused of demanding that Trustees use a part of their funds to pay for professional service to their patients, and thus deprive the sick poor of their comforts. I shall be accused of wanting to annihilate the isolated specialist's income and of making a plutocrat of the general practitioner. The truth is, I do recommend cutting down a few surgeons' incomes; I do recommend the elimination of specialists who are specialists by name rather than by achievement; and I do recommend putting a premium on the practitioner who is an honest friend and adviser of his patient.

Above all, I do recommend teaching the Public to distinguish three different qualifications in doctors for which they must pay in different ways:

1. The personal qualities of charm and sympathetic optimism which give transient mental comfort to the patient and for which the history of human nature shows him ready to pay.

2. The impersonal, efficient, skillful, thorough treatment of an organized group of specialists, who in a businesslike way give him the benefit of the truths hitherto acquired by medical science. The rise of the modern isolated specialist proves that the Public is ready to pay for this.

3. The ultra-educated, genius-like minds, who have the application and ability to wrest from the unknown the secrets which can be taught to the average intelligence. It is these men whom our universities now ask to teach the truth to their students, on the one hand, and to make their living by taking advantage of the ignorance of the rich, on the other. They should be well paid by endowed institutions for fearlessly telling the Truth. The recent rapid growth of endowed institutions, such as the Rockefeller Institute and various hospitals, shows that men of experience in organized industry are beginning to appreciate the value of original minds.

It is our belief that in founding an institution on the End Result

Idea we are taking our part in the natural evolution of modern medicine. We shall help to lower those prices which are grossly unjust and to raise those which are likewise grossly unjust.

But, in any event, we must wait on the education of the Public. The institution is started, financed enough to grow, and is ready to expand. But no matter how great the capitalization, it can grow no faster than the number of patients who are willing to have their cases reported. We do not sell Humbug, so the question is whether there is a demand for Honest Medicine and Surgery.

On the other hand, if the principles involved in this organization are too far removed from what is called Medical Ethics, the Committees on Ethics and Discipline of the Medical Organizations of which the writer is a member can call us to account. (See page 131.)

If these organizations let us live, we can employ the recent graduates of such hospitals and medical schools as teach their students, by example, not to assume responsibility which they know they are not fitted to undertake.

How May the Young Surgeon Make His Start under the End Result System?

It is clear from what I have just said that I should like to employ a young surgeon to do all the work at my hospital that he is fitted to do,—but that I do not want to give him a chance to learn surgery by making mistakes on my patients. I shall have to pay an assistant to help me, for I must fix responsibility on him. At present, at the Charitable Hospital, he is usually not paid, for he receives his reward in the opportunity to learn by his own mistakes. He has the appearance of taking responsibility, but is not really held accountable for his errors. If he is to be held accountable, he should be paid. This is the answer to the question. The End Result System would ultimately oblige Trustees to pay for much of their professional labor.

Is such a state of affairs as now exists necessary at the Charitable Hospitals? Why should not the student be taught what to do and how to do it, before being allowed to do it? If it is for my interest not to assign responsibility without making sure that the person who takes it is competent, why should it not be the *duty* of Trustees or of one of their representatives? Is it not possible to conceive of a charitable hospital which makes it a rule not to accept for treatment any cases which its Staff cannot relieve? A business organization which started in on this basis would insist on its Staff becoming competent, or it would seek men who were competent. Who could they get, but men who had been trained in the universities and larger hospitals? At present, any one with an M.D. will do, for he does not have to be competent.

To express it plainly,—if the End Result System were in common use, all hospital work would have to be done so much more thoroughly than it is today, that competent assistants would be in

great demand. There would be more work to be done by the young surgeon,—not less work. If the chiefs were obliged to concentrate their attention on the difficult cases, they would be glad enough to let their juniors do what routine operating they could safely intrust to them.

If a young surgeon devoted his time and brains to studying some difficult class of cases, and through the knowledge thus attained succeeded in developing a satisfactory method of treatment, his services would be in immediate demand. If his methods were really good, they would be advertised in the End Result Report of his hospital. Others would come from distant hospitals to learn from him. His work would be a credit to his hospital and a cause for his promotion. Those who came from distant hospitals to learn his methods would establish similar reputations locally, when they returned to their communities. The result of this would be a constant process of the rational diffusion of new and successful forms of treatment, instead of scattered instances of experiments performed by individuals, more or less aimlessly, and without adequate record to try out vaunted discoveries.

After all, there is a certain amount of operating to be done, and a certain number of men to do it. Therefore, it cannot be said that the young surgeon would get less experience if the system of organization of our hospitals were changed, so that he began by doing what he could be trusted to do well. We should soon find that we should get better results by permitting him to do much of the actual operating, than by intrusting him with many of the really difficult and important details of pre- and post-operative treatment, which we now give over to him because they are tedious, time-consuming, and uninteresting.

We should find, as is shown in our analysis in Part I, that since our failures result from errors of care, errors of skill, errors of knowledge, errors of judgment, and from our inability scientifically to cope with some of the diseases which affect our patients, the young surgeon's education should be developed with regard to these facts. We should therefore first make the young surgeon qualify by demonstrating that he can exhibit constant *care* in doing what he has been taught how to do. He can then attain *skill* by assisting, by dissecting, by operating on animals, and by doing routine operations. He can acquire *knowledge* by study, travel, observation, and by following the End Results of cases he has helped to operate on, so that he can learn by his superiors' errors as well as by their successes. Judgment must come from experience, as well as from training and an inborn balance of mind. If the young surgeon is permitted to record his differences of opinion when he does not agree with his chief or his colleagues, his judgment can be actually measured. It will be found to be a more accurate test of judgment to oblige the junior to select the cases he is competent to relieve, than, as is often done now,—to assign cases to him as a reward for

assisting his senior in private practice! Finally, having qualified at these tests, if he has the ability to search out from the Unknown some of the secrets of pathology, and to found successful methods of treatment on this knowledge, he may qualify as a great surgeon.

Then there is always surgery to be done in remote communities and in the poorer districts, and now there is the war. Shall we let a Seniority System keep returning military surgeons at arm's length, as it does the surgeons who have gone to remote civil fields? Or shall we make the counter mistake of dropping tried civil surgeons to make room for returning military heroes? When this war is over, let us at least remember the lesson that Efficiency in Peace is the best training for Efficiency in War.

It is well enough to believe that Right makes Might, but the corollary is, that Might is a proof of the Efficient use of Right. Truth is Right and Science is but a synonym of Truth. Efficiency must acknowledge Truth and use it in a truthful way. It is the scientific use of science. There is nothing evil about either Efficiency or Might. The Truthful use of Truth cannot be wrong. That individual, that group, that hospital, that community, that nation, that world, which plays the cleanest game will be the mightiest and the happiest! Individual leaders can never read the future clearly enough to justify their employing secrecy to increase Efficiency. The Few need the help of the Many when they seek such a difficult thing to obtain as Truth. Secrecy is the peculiar disease of Efficiency. It produces suspicion and distrust in the team itself, and victory depends on the superior integrity (in both senses of the word) of the team. Publicity is the cure of the disease, Secrecy. Publicity acknowledges not only the importance of Truth, but the fact that it is difficult to obtain, even when we all earnestly try for it. It is idle to say that we have not already much Truth at our disposal, but it can be said that we should find more Truthful ways in which to use it.

ADVERTISEMENT

CODMAN HOSPITAL CLINIC, 15 PINCKNEY ST., BOSTON, MASS.
Tuesdays, Thursdays, and Saturdays at 12 o'clock

MAXIMUM FEES

(Half of which will be used to maintain the Hospital and Clinic, and the other half divided among the Professional Staff)

Physical examination, diagnosis, and advice	$10.00
X-ray examination	10.00
Later office visits for advice or treatment	3.00
Calls at patients' homes (and $3 an hour after first hour)	5.00
Consultation with patient's physician at home (and $10 for each additional hour)	10.00
Care in Hospital (including operation and other professional services of Staff)	
For first week	100.00
For each week thereafter	50.00
General Anæsthetic	10.00
Operations at patients' homes or at other hospitals	No fixed charges

MINIMUM FEES

(For patients who claim inability to pay the above)

One-half the above amounts (all used to maintain the Hospital and Clinic).

Half the maximum fee may be paid on the instalment plan, but one-half must be paid in cash, weekly in advance.

All Fees will be returned if at the end of a year the patient claims he was not benefited.

All patients must be willing to have the record of their cases made public by number (not by name).

Any patient may consult Dr. Codman or any member of the Staff privately, without having his case put on record at the Hospital. In such cases, the charge will be the same as if the patient consulted the Hospital and had the benefit of the advice of several members of the Staff.

At the Hospital, Dr. Codman will see every patient and do every operation if the patient wishes, but will refer to his colleagues and assistants all steps in the work which he knows they are as competent or more competent to do.

The Clinic will not undertake to treat patients, if in doubt of the diagnosis or of the probability of the success of treatment, but any member of the Staff may do so privately—*just like any other doctor.*

LAST WORD

IF MEDICAL ETHICS SHOULD CRITICIZE US, WOULD THE CRITICISMS REFER TO THE PORTIONS OF OUR WORK WHICH WE DO

On Tuesdays, Thursdays, and Saturdays
AT THIS HOSPITAL

Where we treat cases which our experience has qualified us to relieve, and where we advertise (enlighten the Public) as to what we can and cannot do.

OR

On Mondays, Wednesdays, and Fridays
AT PUBLIC OR PRIVATE HOSPITALS

Where we do not have to prove that we are qualified to treat the cases, and where we do not advertise (enlighten the Public) as to what we can and cannot do.